

UM-HSRI-77-39-4

**WHOLE BODY RESPONSE
RESEARCH PROGRAM**

Appendix C: Processed Data

N. M. Alem

**FINAL REPORT
APRIL 1978**



**THE UNIVERSITY OF MICHIGAN
HIGHWAY SAFETY RESEARCH INSTITUTE**

| | | | | | |
|---|--|--|---|---|-----------|
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| 16. Abstract The general objective of this program was to generate data on the kinematics and response of human surrogates in a realistic automobile impact environment. The program used a test configuration consisting of an idealized hard seat representation of a car seat with a three-point harness restraint system. Three different severity levels of crash test conditions were used. The human surrogates tested in this program were fifteen male cadavers, a Hybrid II (Part 572) Anthropomorphic Test Device and a Hybrid III ATD recently developed by GM. In addition, mathematical simulations of the response and kinematics of a 50th percentile male occupant were performed at the three levels of crash severity, using the MVMA Two-Dimensional Crash Victim Simulator. The data that has been produced by this program represents one of the most comprehensive and extensive documentations of whole-body response to date. The primary utility of the data is for comparing the similarities and differences in response and kinematics of the various types of human surrogates and in pointing out areas that need improvement in both anthropomorphic test devices and mathematical models. | | | | | |
| 17. Key Words Whole-Body Kinematics; Cadaver Anthropometry; 3-D Motion; X-Ray Measurements; Head Injury Criterion; Digital Filtering & Processing. | | | 18. Distribution Statement Unlimited | | |
| 19. Security Classif. (of this report) Unclassified | | 20. Security Classif. (of this page) Unclassified | | 21. No. of Pages 336 | 22. Price |

APPENDIX C

This Appendix contains the detailed results of data processing. These consist of graphical output of measured and computed accelerations, velocities and displacements as well as forces. For each test, a summary sheet is included which gives the peaks of all the variables and the times at which they occurred.

The results are arranged by tests and are grouped into two parts: CADAVER data and DUMMY data. Since there were three series of dummy runs, the second part is divided into 3 series: the DM3X series in which a certified part 572 anthropomorphic test device (ATD) was used with standard instrumentation, the DM9X series in which the 9-accelerometer package was added to the certified part 572 ATD, and finally, the DUM series in which the standard instrumentation was combined with external transducers similar to those used in cadaver runs. For this last DUM series, most of the instrumentation problems had been ironed out, and the data resulting from this series should be more reliable than the data obtained from the first two.

APPENDIX C
PART 1.
CADAVER PROCESSED DATA

TABLE OF CONTENTS

CADAVER RUNS

| TEST NUMBER | CADAVER | SUMMARY | SLED PULSE | 3-D ANG. ACC. & VEL. | 3-D EULER RATES & ANGLES | 3-D ACC. OF ORIGIN | 3-D ORIGIN VEL. & POS. | THORAX/PELVIS ACC. RDGS. | BELTS/FEMUR LOADS RDGS |
|-------------|---------|---------|------------|----------------------|--------------------------|--------------------|------------------------|--------------------------|------------------------|
| A-865 | 3 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| A-866 | 3 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| A-869 | 4 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| A-870 | 4 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| A-874 | 5 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 |
| A-875 | 5 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 |
| A-881 | 6 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| A-882 | 6 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 |
| A-925 | 7 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 |
| A-926 | 7 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 |
| A-934 | 8 | 85 | 86 | 87 | -- | -- | -- | 88 | 89 |
| A-935 | 8 | 91 | 92 | 93 | -- | -- | -- | 94 | 95 |
| A-936 | 8 | 97 | 98 | 99 | -- | -- | -- | 100 | -- |
| A-938 | 9 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 |
| 76B001 | 10 | 109 | --- | 111 | 112 | 113 | 114 | 115 | 116 |
| 76B002 | 11 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 |
| 76B003 | 12 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 |
| 76B004 | 13 | 133 | 134 | 135 | --- | --- | --- | 136 | 137 |
| 76B005 | 14 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 |
| 76B006 | 15 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 |

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: A-865
=====

SUBJECT: WBR-3

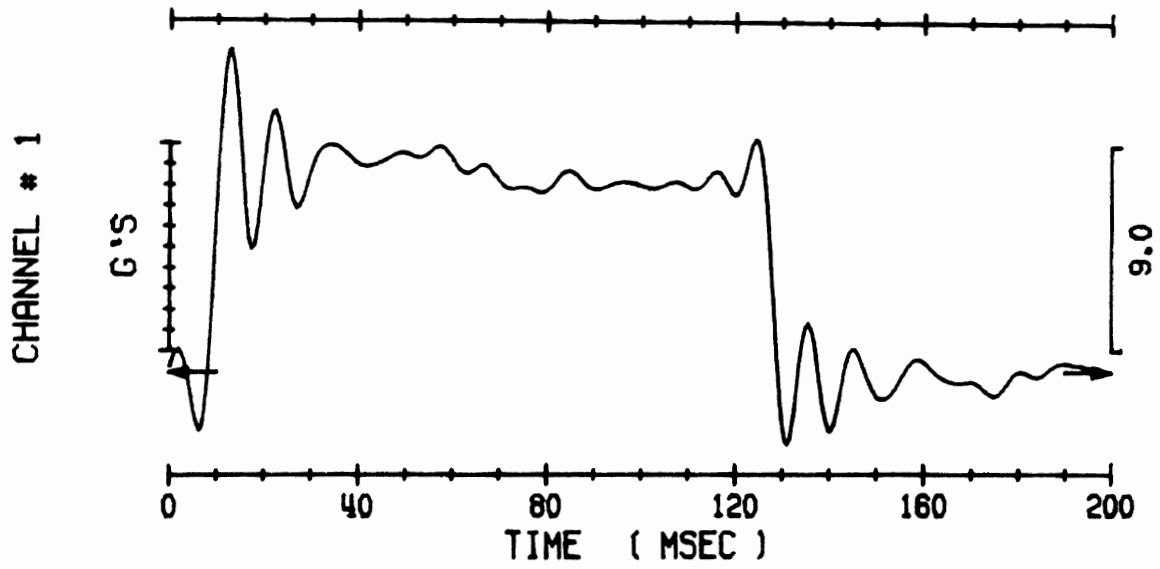
8.7 G-LEVEL
121. MS LONG
22.2 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 830. | 613. | 651. | 1259. | 0. | 0. |
| (LBS) @ (MS) | 72.4 | 71.1 | 71.1 | 69.9 | 0.0 | 0.0 |

| | RESULTANT | (A-P) | | (L-R) | | (S-I) | |
|----------------|-----------|-------|-------|--------|-------|-------|-------|
| | PEAK | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 21. | -18. | -0. | -6. | 5. | -6. | 4. |
| (G'S) @ | 61.1 | 77.7 | 33.6 | 84.1 | 61.6 | 69.9 | 101.6 |
| GSI= | 75 | | | | | | |
| EX PELVIS ACC: | 0. | -17. | 1. | 0. | 0. | -3. | 14. |
| (G'S) @ | 0.0 | 65.3 | 150.5 | 0.0 | 0.0 | 114.3 | 66.3 |
| | | | | | | | |
| HEAD ANG ACC : | 1801. | -502. | 134. | -1336. | 1694. | -669. | 405. |
| (RAD/S/S) @ | 69.8 | 124.6 | 104.8 | 98.1 | 70.9 | 106.5 | 64.5 |
| HEAD ANG VEL : | 41.0 | -4.6 | 5.9 | 18.1 | 37.7 | -8.3 | 9.9 |
| (RAD/S) @ | 86.0 | 144.2 | 108.5 | 112.6 | 86.5 | 137.1 | 81.4 |
| EULER ANGLES : | | | 115.3 | | 71.9 | | 107.6 |
| (DEGREES) @ | | | 126.7 | | 126.5 | | 126.7 |
| | | | | | | | |
| HEAD C.G. ACC: | 32. | -13. | -2. | -0. | 10. | -29. | 4. |
| (G'S) @ | 87.3 | 78.7 | 99.4 | 70.3 | 143.8 | 91.4 | 56.3 |
| HEAD C.G. HIC= | 133 | | | | | | |
| HEAD C.G. VEL: | 470. | -442. | 1. | 5. | 127. | -68. | 167. |
| (IN/S) @ | 164.1 | 145.3 | 56.7 | 81.9 | 161.7 | 106.0 | 161.7 |
| HEAD C.G. DIS: | | | -1.4 | | 0.3 | | 0.8 |
| (IN) @ | | | 86.7 | | 86.7 | | 84.9 |

FILE: 1

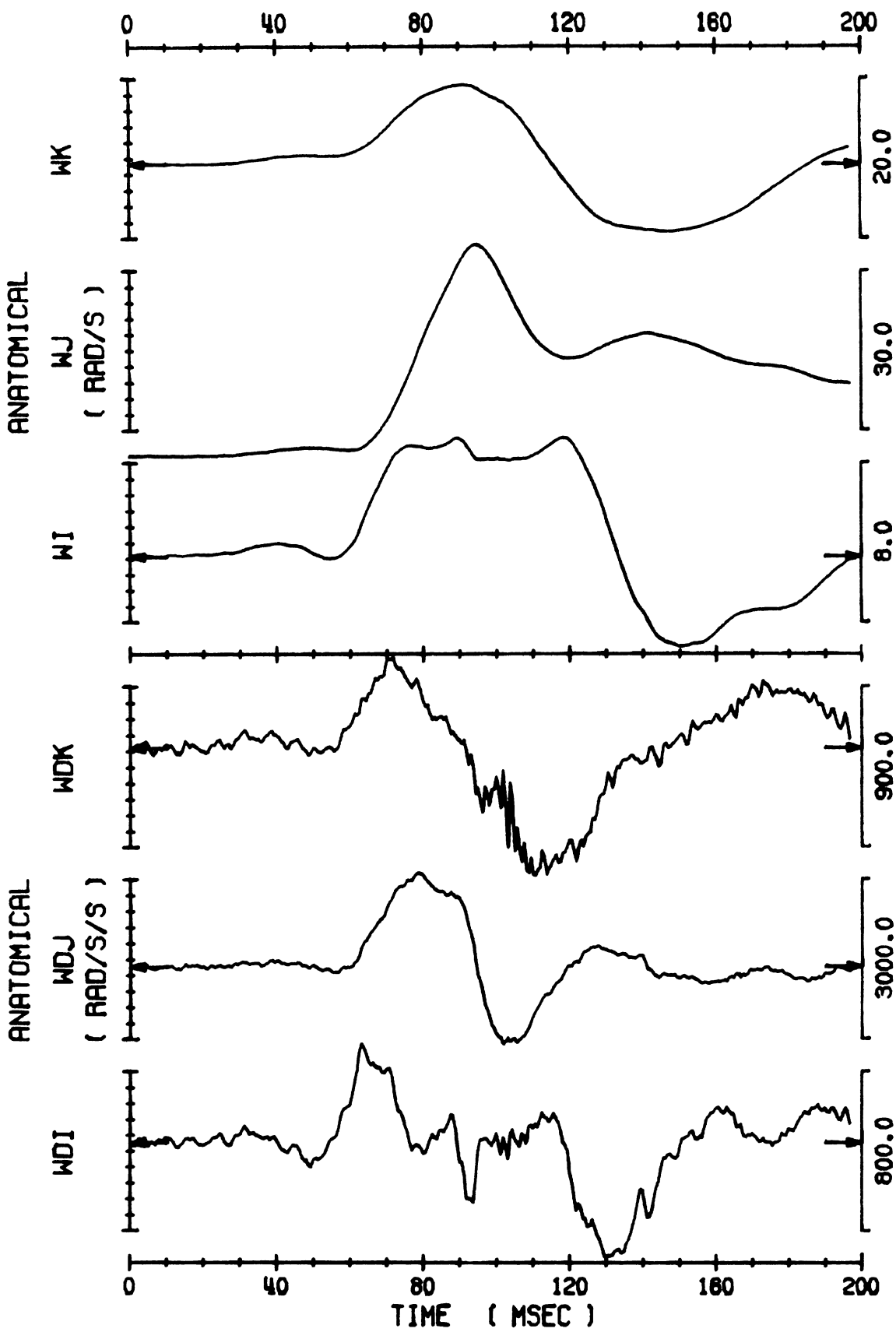
A-865-1: WBR-3



SLED DECELERATION

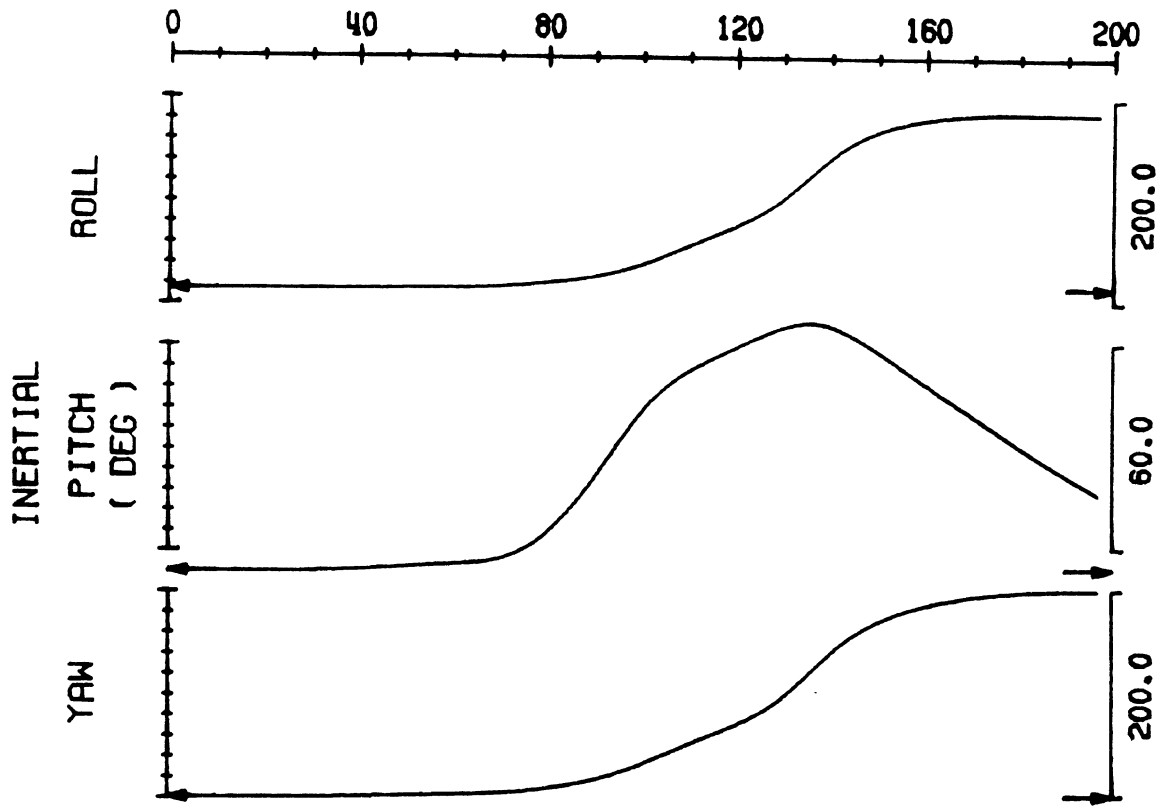
ANG VELOCITIES

ANG ACCELERATIONS

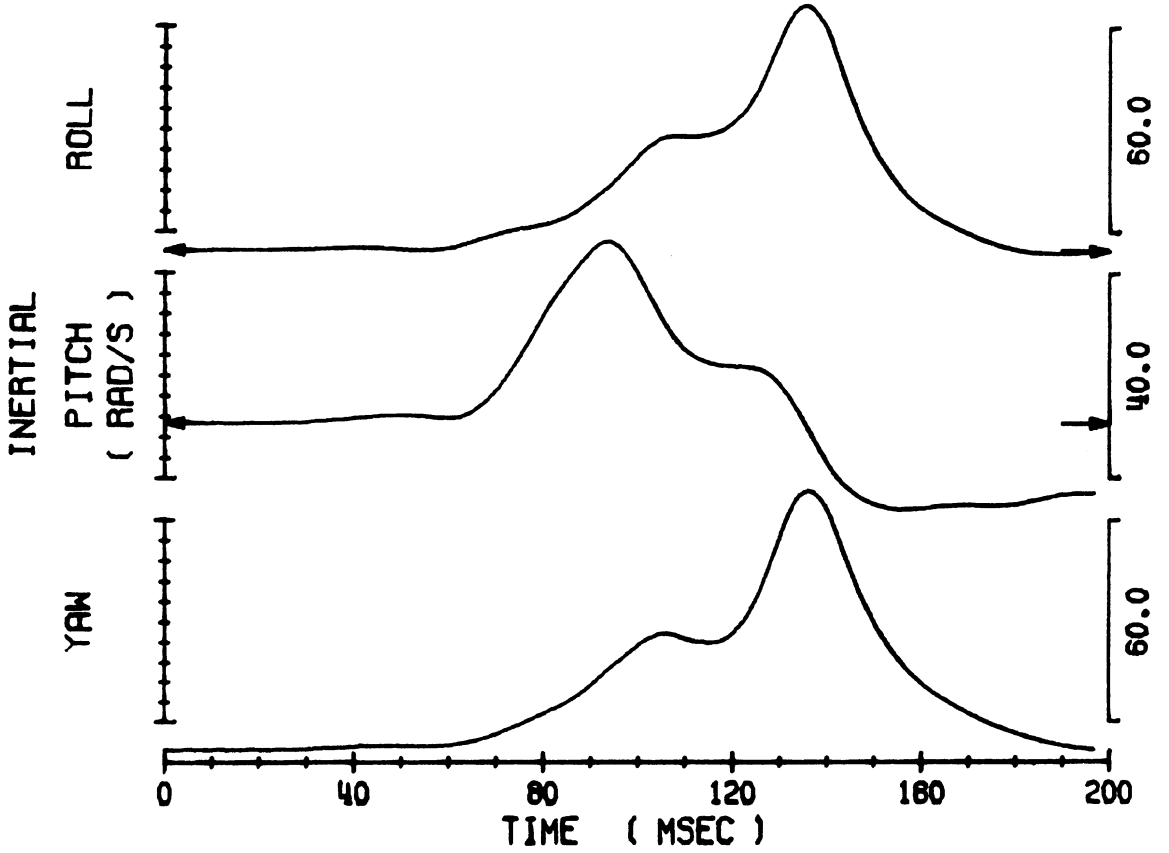


3-D ANGULAR MOTION

EULER ANGLES



EULER RATES

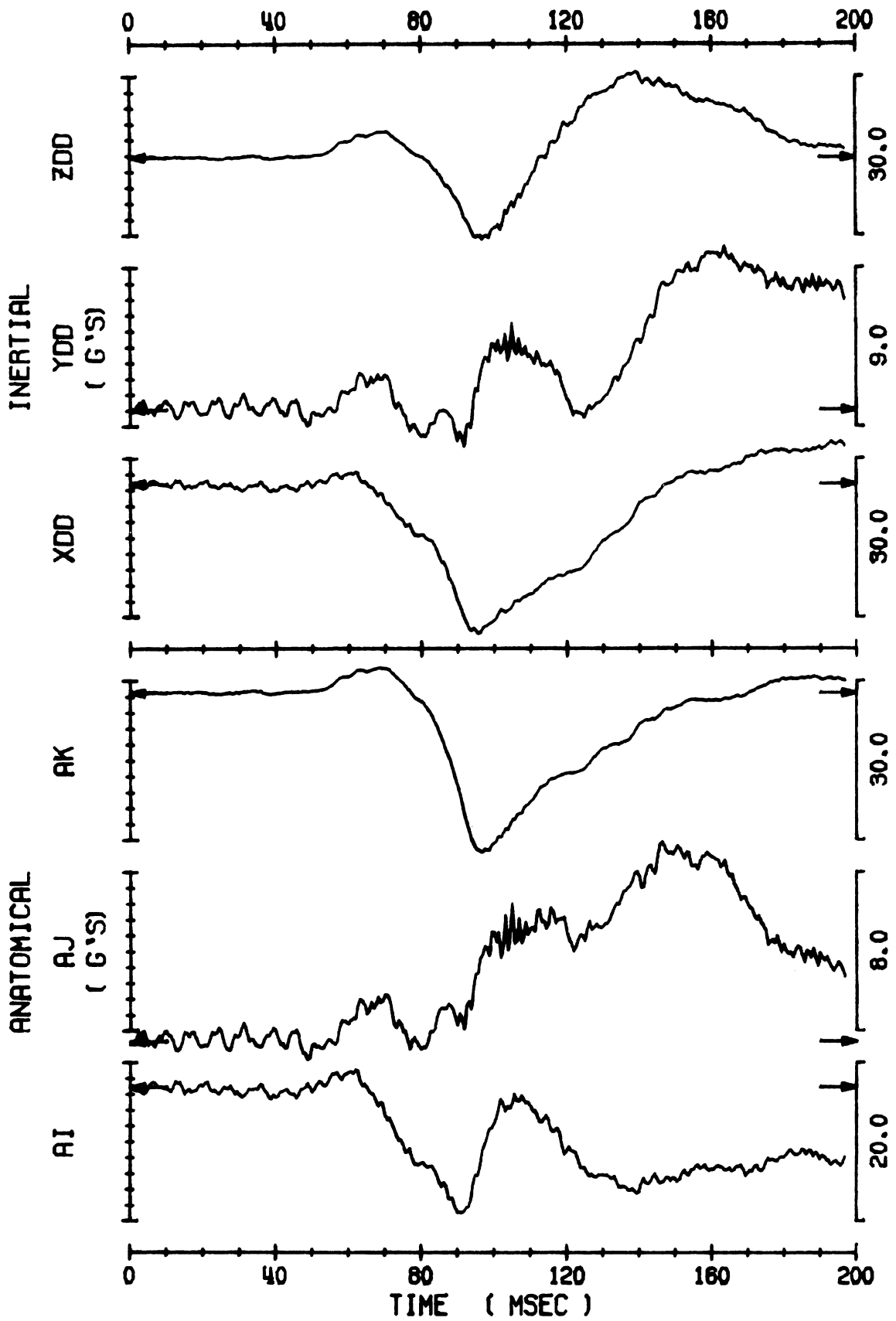


3-D ROTATIONS

ACC OF: ANATOMICAL CENTER GSI= 166, HIC= 133

FILE: 7

A-865-1: WBR-3

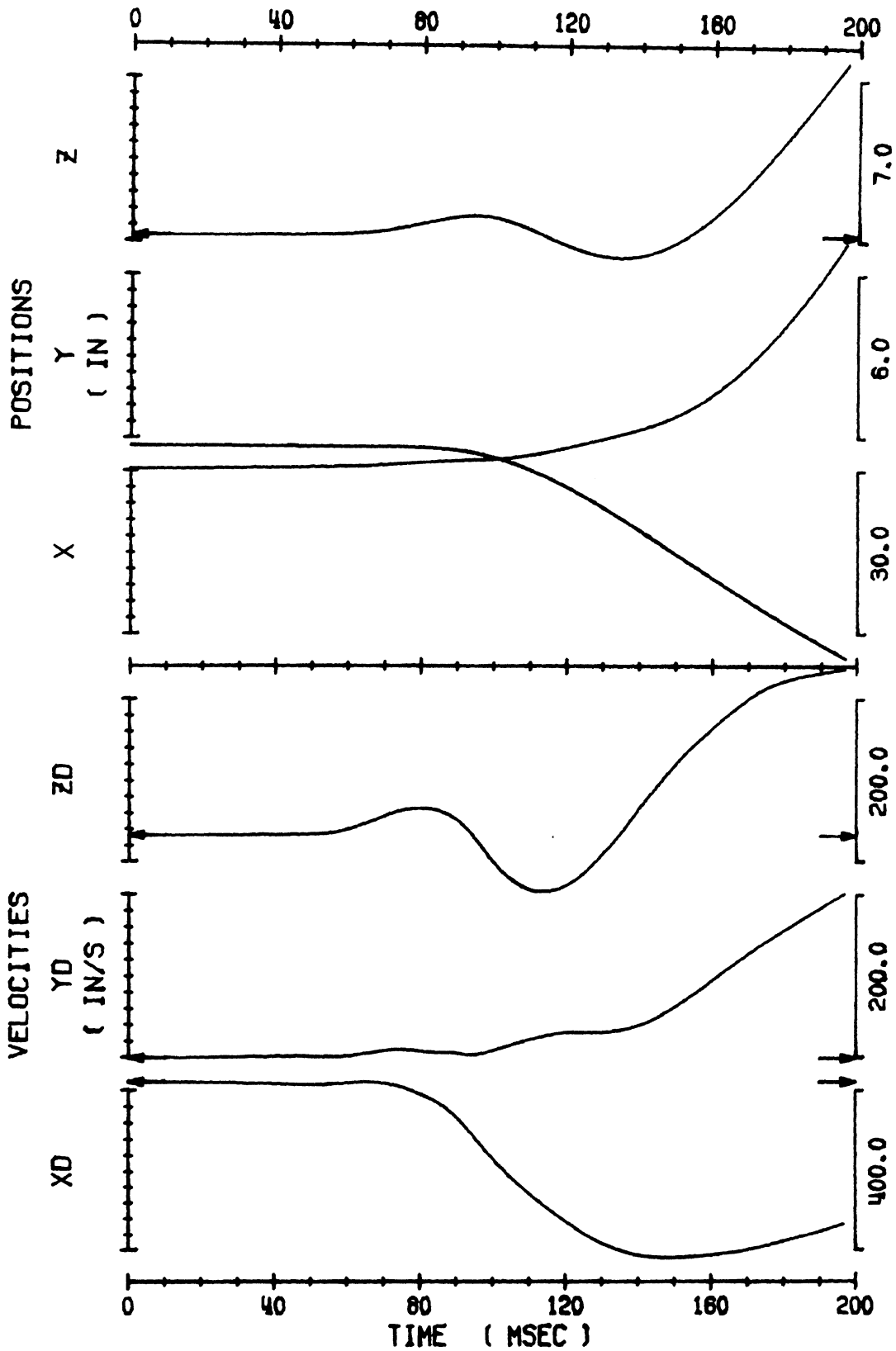


3-D ACCELERATIONS

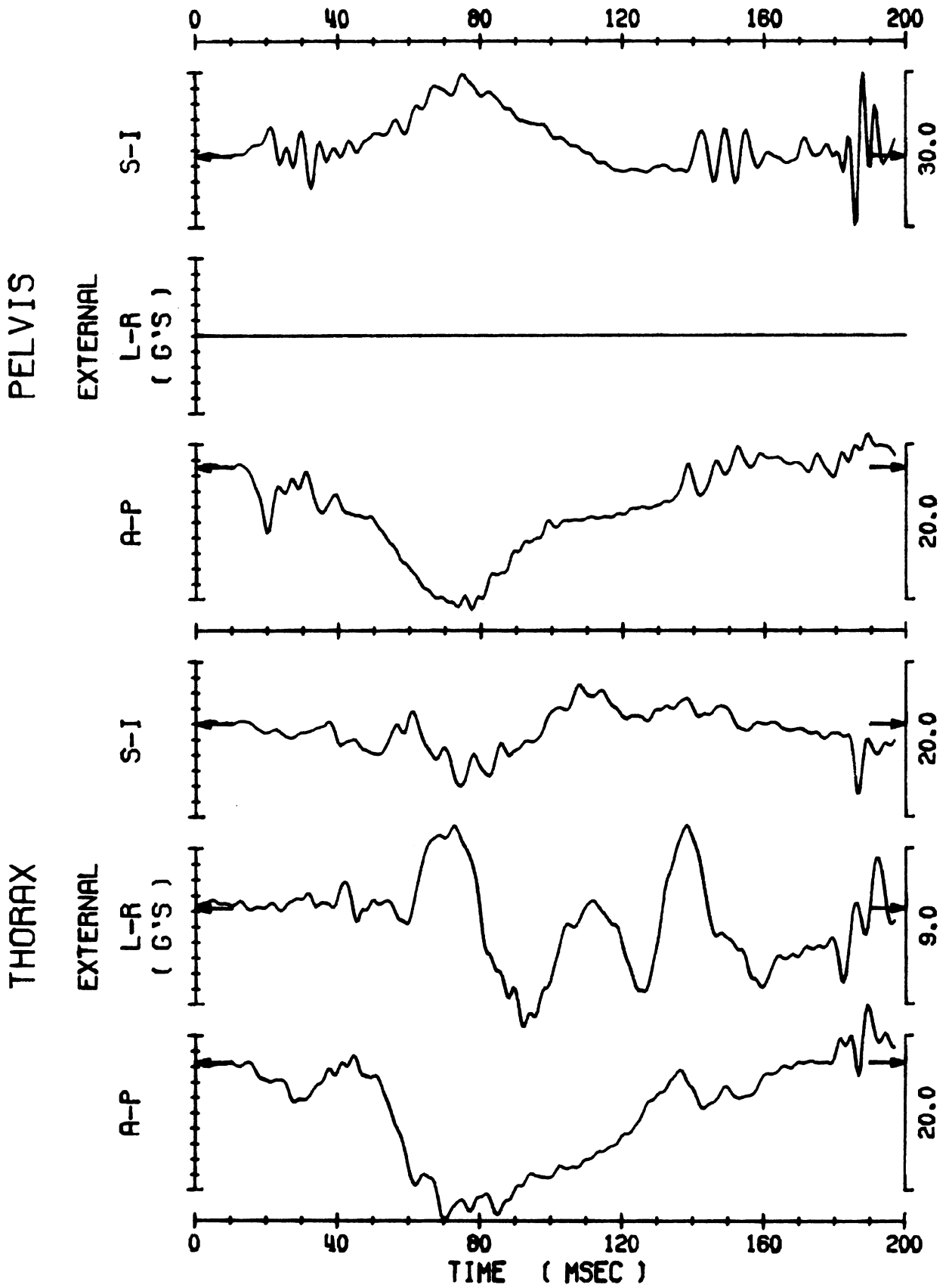
INERTIAL MOTION OF: ANATOMICAL CENTER

FILE: 8

A-865-1: WBR-3

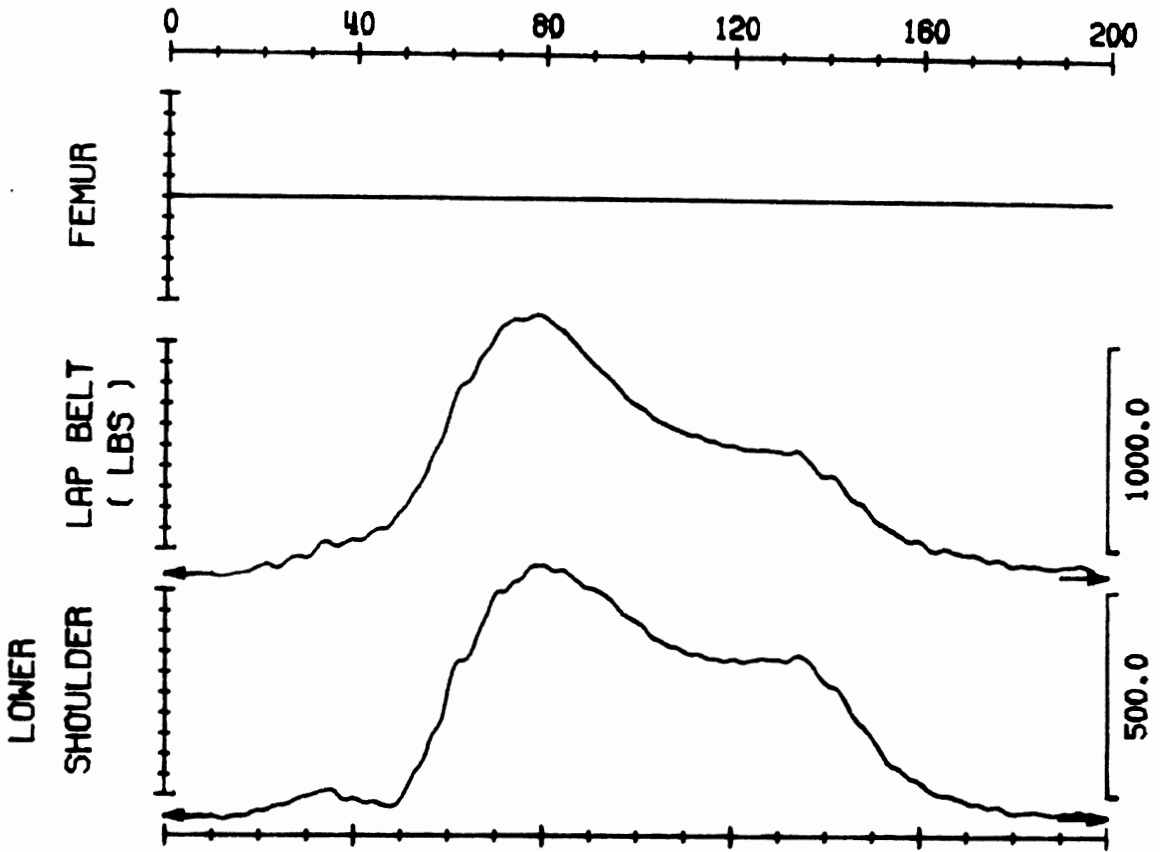


3-D TRANSLATIONS

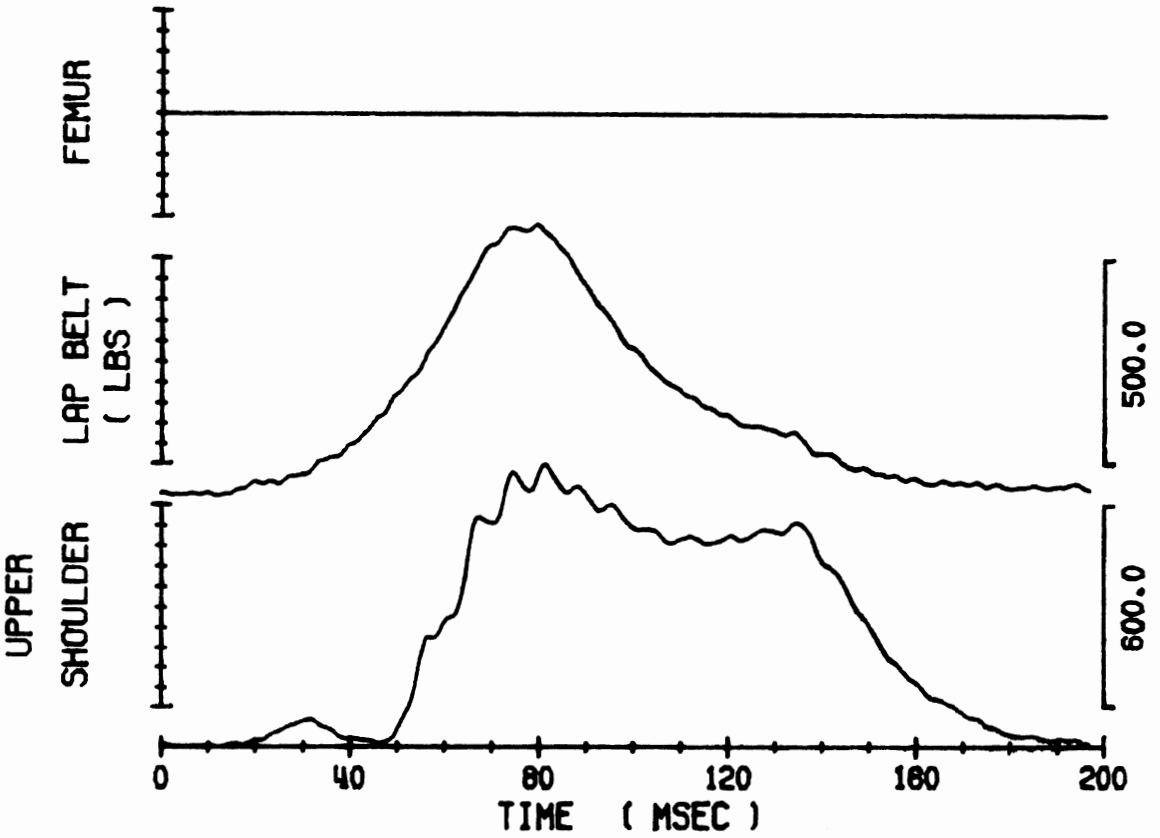


MEASURED ACCELERATIONS

RIGHT SIDE



LEFT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: A-866

SUBJECT: WBR-3

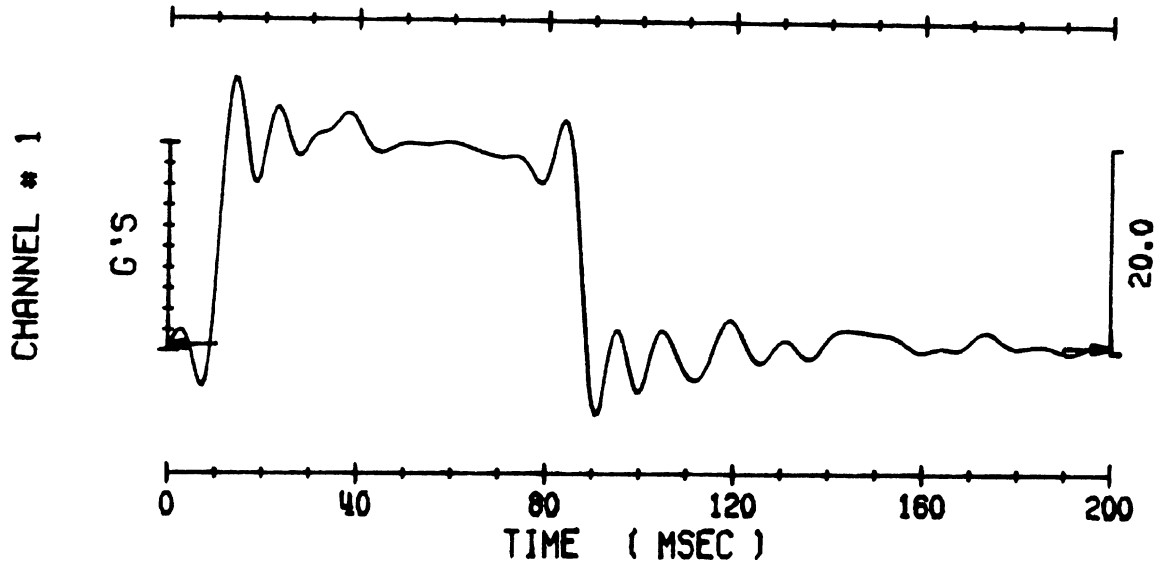
19.8 G-LEVEL
79. MS LONG
31.9 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1636. | 1203. | 1148. | 2232. | 0. | 0. |
| (LBS) @ (MS) | 76.1 | 74.2 | 52.4 | 53.6 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|--------|-------|--------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 97. | -15. | 5. | -23. | 13. | -8. | 14. |
| (G'S) @ | 56.7 | 108.0 | 98.9 | 109.8 | 101.1 | 109.1 | 100.2 |
| GSI= | 572 | | | | | | |
| EX PELVIS ACC: | 0. | -33. | 19. | 0. | 0. | -10. | 27. |
| (G'S) @ | 0.0 | 49.5 | 132.7 | 0.0 | 0.0 | 83.2 | 47.9 |
| | | | | | | | |
| HEAD ANG ACC : | 4535. | -925. | 302. | -3663. | 2199. | -1515. | 523. |
| (RAD/S/S) @ | 72.8 | 62.0 | 96.0 | 73.9 | 90.8 | 77.2 | 93.1 |
| HEAD ANG VEL : | 60.8 | 1.6 | 8.6 | 18.0 | 56.2 | -13.0 | 12.5 |
| (RAD/S) @ | 66.0 | 67.9 | 54.6 | 83.6 | 65.7 | 90.0 | 61.7 |
| EULER ANGLES : | | | 114.2 | | 78.9 | | 106.6 |
| (DEGREES) @ | | | 96.0 | | 94.8 | | 96.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 63. | -26. | 1. | -2. | 14. | -57. | 2. |
| (G'S) @ | 70.9 | 59.6 | 74.9 | 58.4 | 75.0 | 75.6 | 131.0 |
| HEAD C.G. HIC= | 628 | | | | | | |
| HEAD C.G. VEL: | 975. | -736. | 5. | 7. | 306. | -133. | 77. |
| (IN/S) @ | 187.8 | 135.6 | 36.0 | 63.2 | 131.0 | 82.8 | 126.4 |
| HEAD C.G. DIS: | | | -62.1 | | 20.8 | | 0.6 |
| (IN) @ | | | 161.0 | | 161.0 | | 161.5 |

FILE: 12

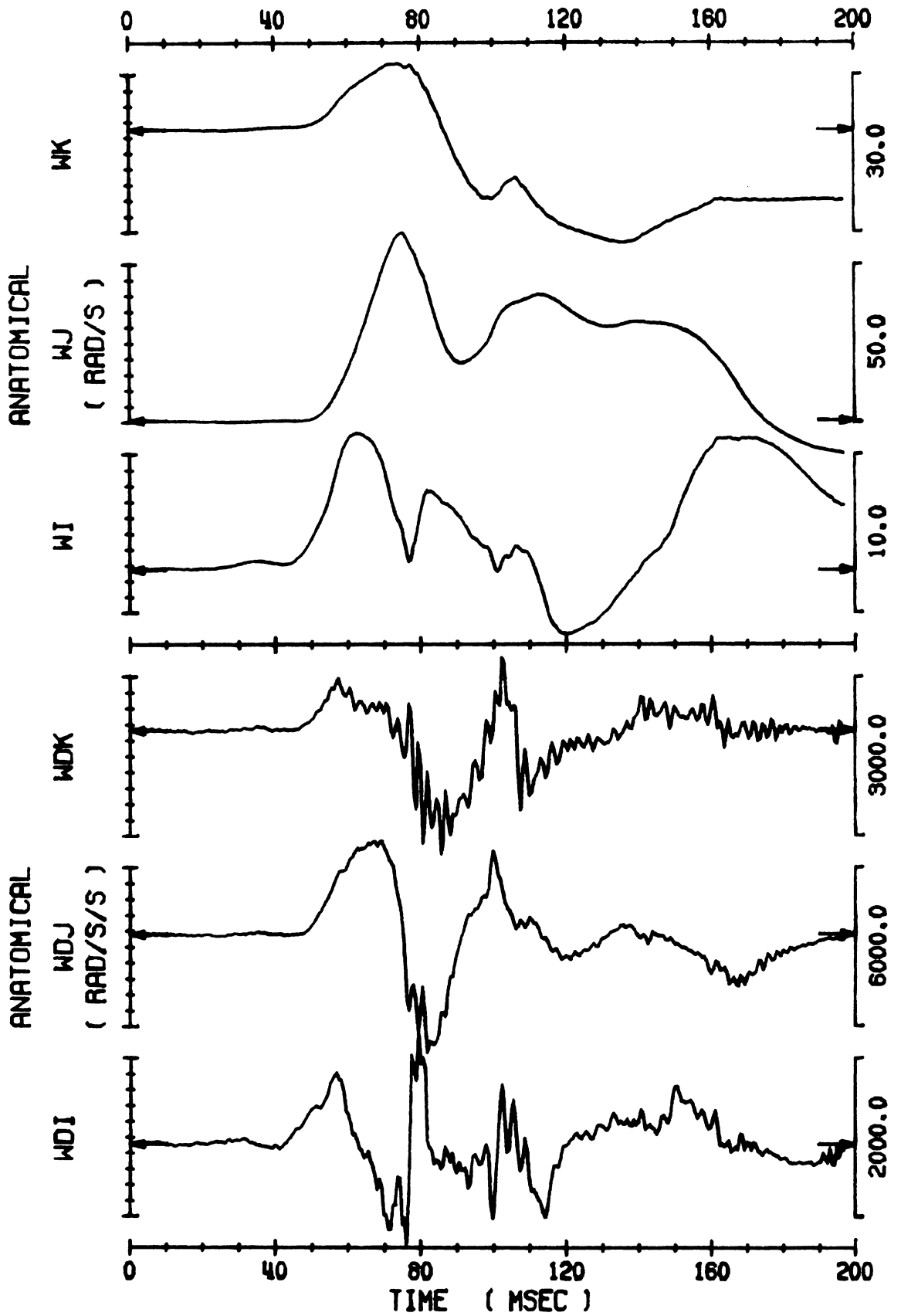
A-866-1: WBR-3



SLED DECELERATION

ANG VELOCITIES

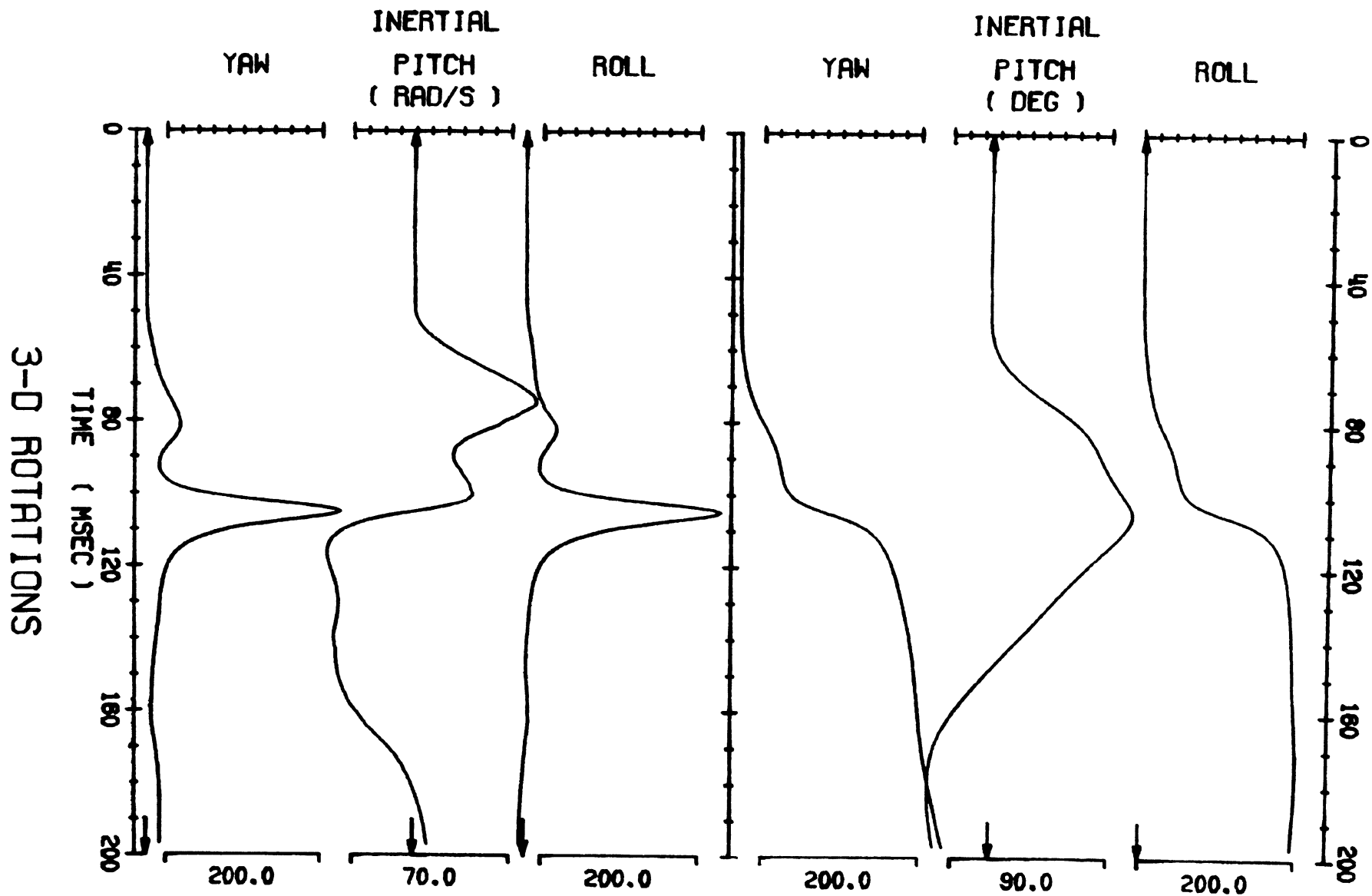
ANG ACCELERATIONS



3-D ANGULAR MOTION

EULER RATES

EULER ANGLES



FILE: 17

A-866-1: MBR-3

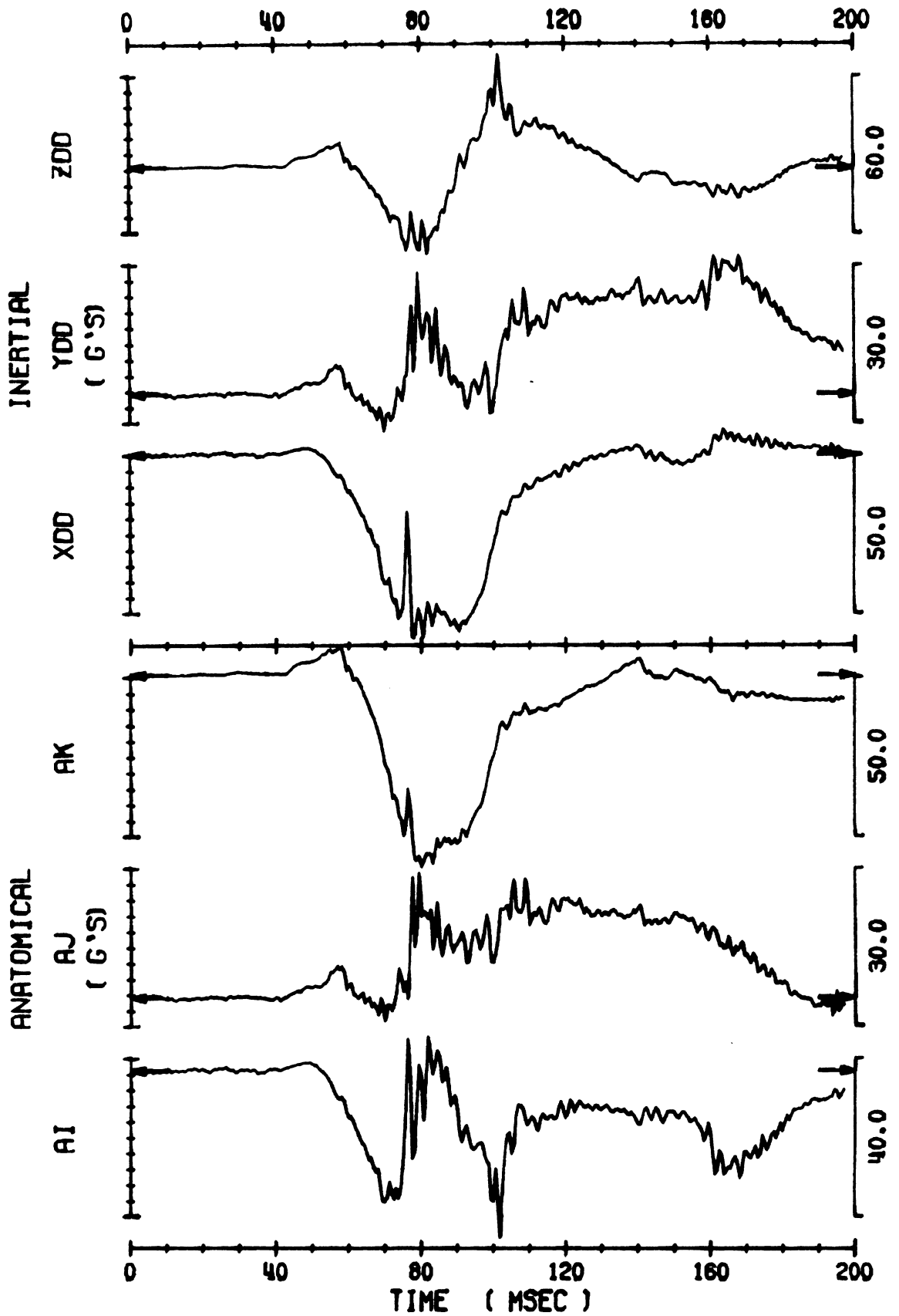
3-D ROTATIONS

C-16

ACC OF: ANATOMICAL CENTER GSI= 854, HIC= 628

FILE: 10

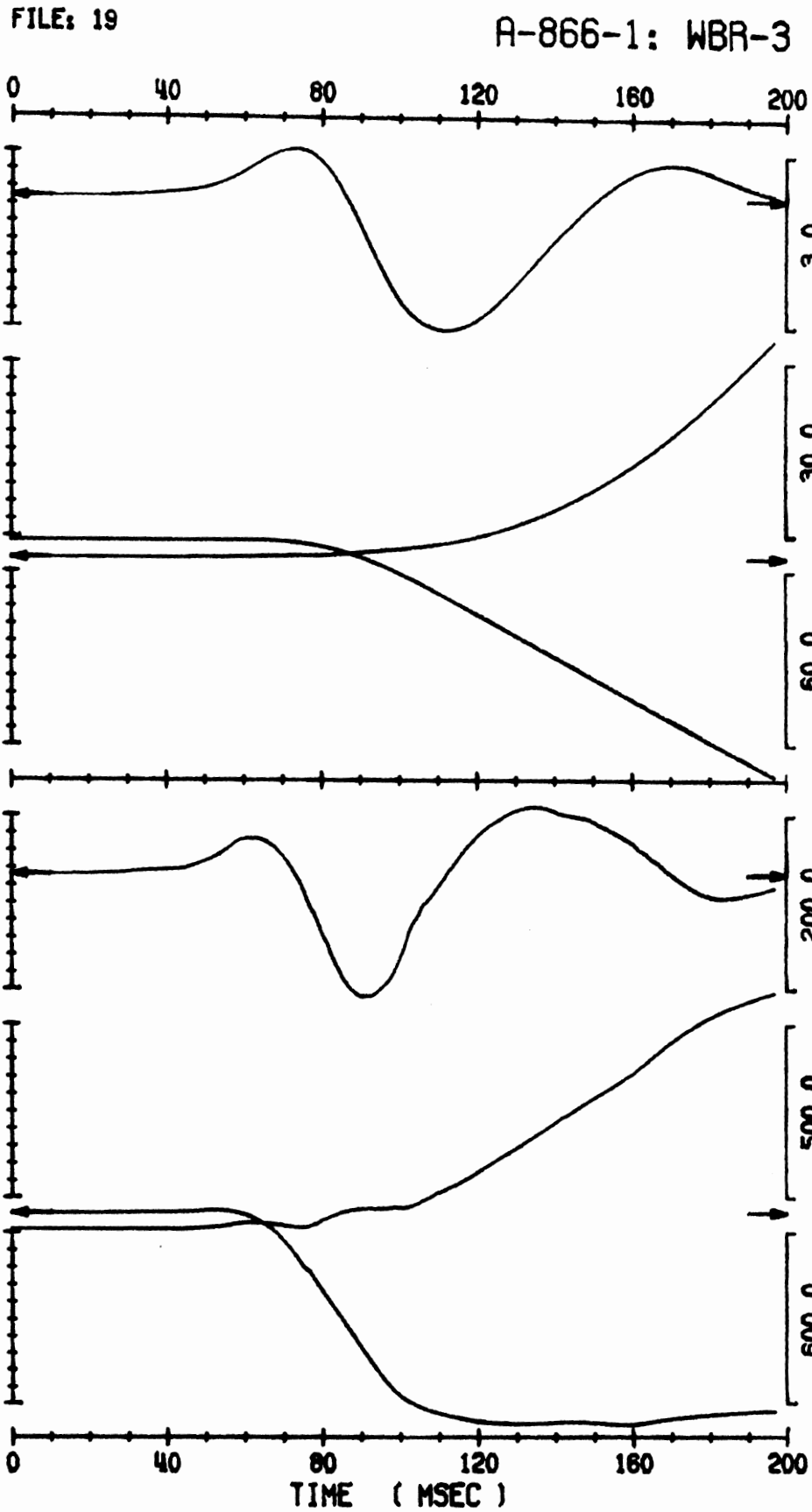
A-866-1: WBR-3



3-D ACCELERATIONS

ANATOMICAL CENTER

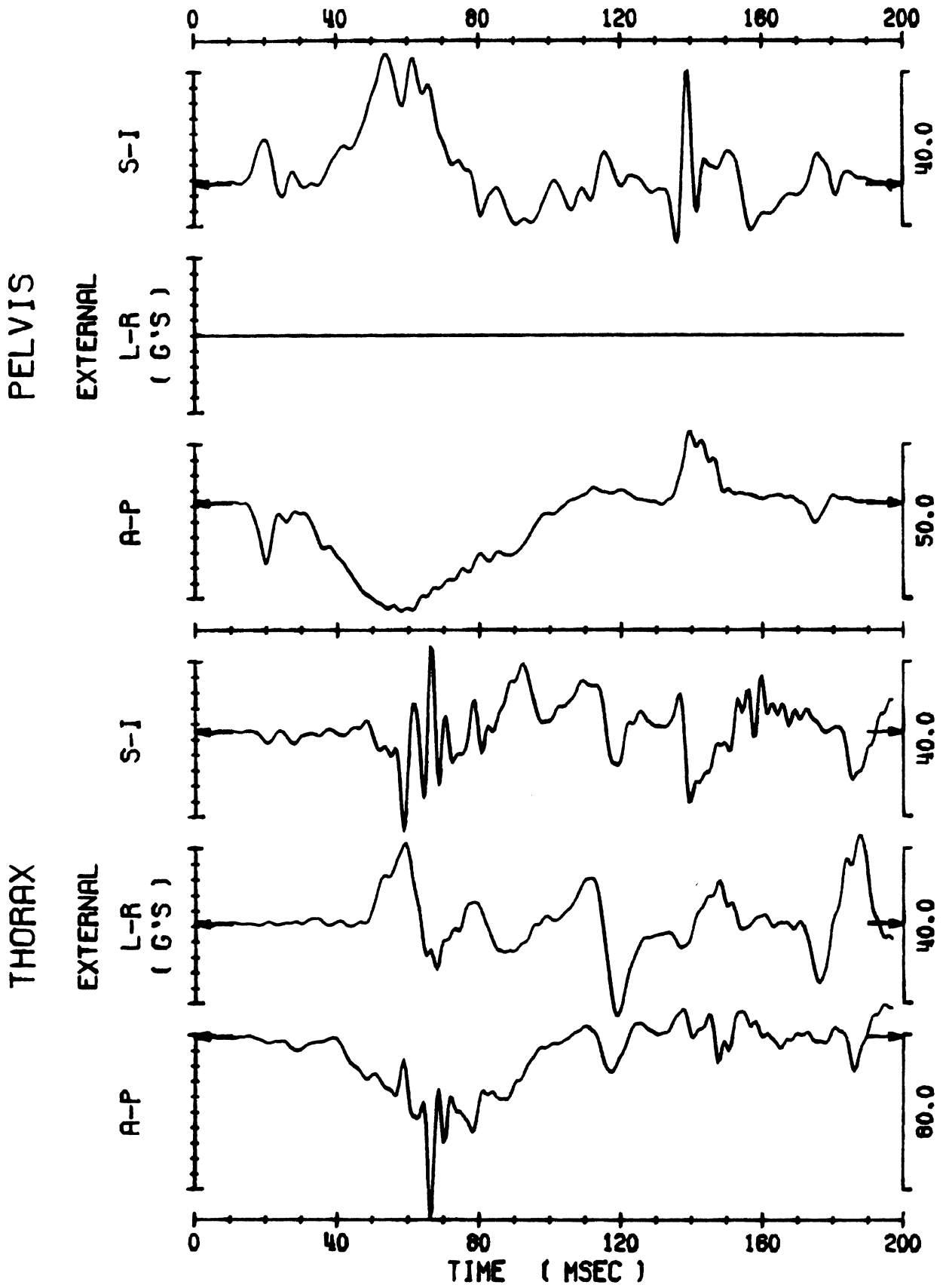
INERTIAL MOTION OF:



3-D TRANSLATIONS

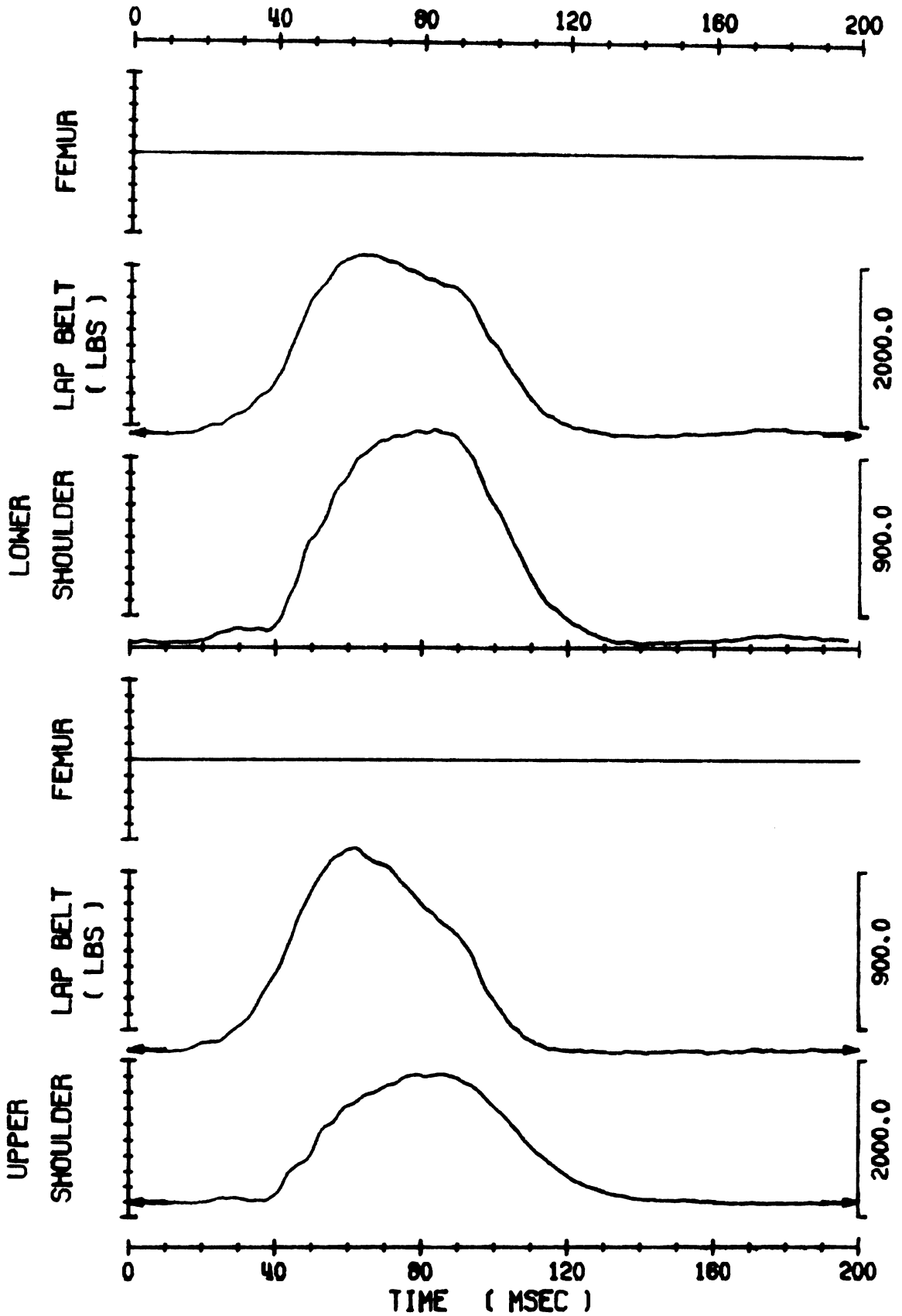
FILE: 21

A-866-2: WBR-3



MEASURED ACCELERATIONS

RIGHT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: A-869
=====

SUBJECT: WBR-4

9.8 G-LEVEL
119. MS LONG
24.4 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 871. | 724. | 569. | 1375. | 0. | 0. |
| (LBS) @ (MS) | 81.4 | 81.4 | 81.4 | 79.5 | 0.0 | 0.0 |

| | RESULTANT | (A-P) | | (L-R) | | (S-I) | |
|----------------|-----------|-------|-------|-------|-----|-------|-------|
| | PEAK | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 0. | -35. | 14. | 0. | 0. | -9. | 10. |
| (G'S) @ | 0.0 | 73.3 | 126.3 | 0.0 | 0.0 | 57.2 | 74.3 |
| GSI= | 0 | | | | | | |
| EX PELVIS ACC: | 0. | -21. | 2. | 0. | 0. | -5. | 6. |
| (G'S) @ | 0.0 | 79.3 | 142.6 | 0.0 | 0.0 | 93.2 | 136.8 |

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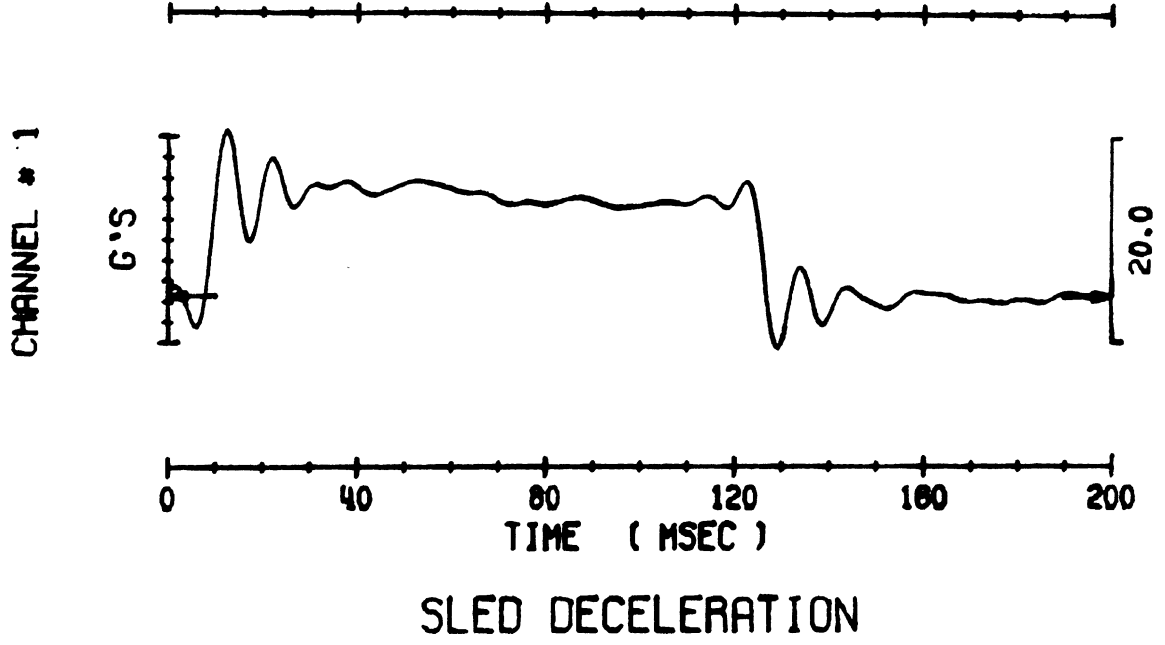
| | | | | | | | |
|----------------|-------|-------|-------|--------|-------|--------|-------|
| HEAD ANG ACC : | 3273. | -608. | 652. | -2846. | 2114. | -1230. | 927. |
| (RAD/S/S) @ | 93.8 | 128.8 | 86.5 | 93.9 | 67.5 | 92.5 | 68.4 |
| HEAD ANG VEL : | 54.9 | 6.5 | 20.5 | 6.9 | 49.3 | -8.0 | 17.3 |
| (RAD/S) @ | 83.8 | 144.6 | 101.8 | 115.9 | 82.5 | 120.3 | 81.4 |
| EULER ANGLES : | | | 109.9 | | 56.0 | | 133.1 |
| (DEGREES) @ | | | 122.0 | | 121.3 | | 122.0 |

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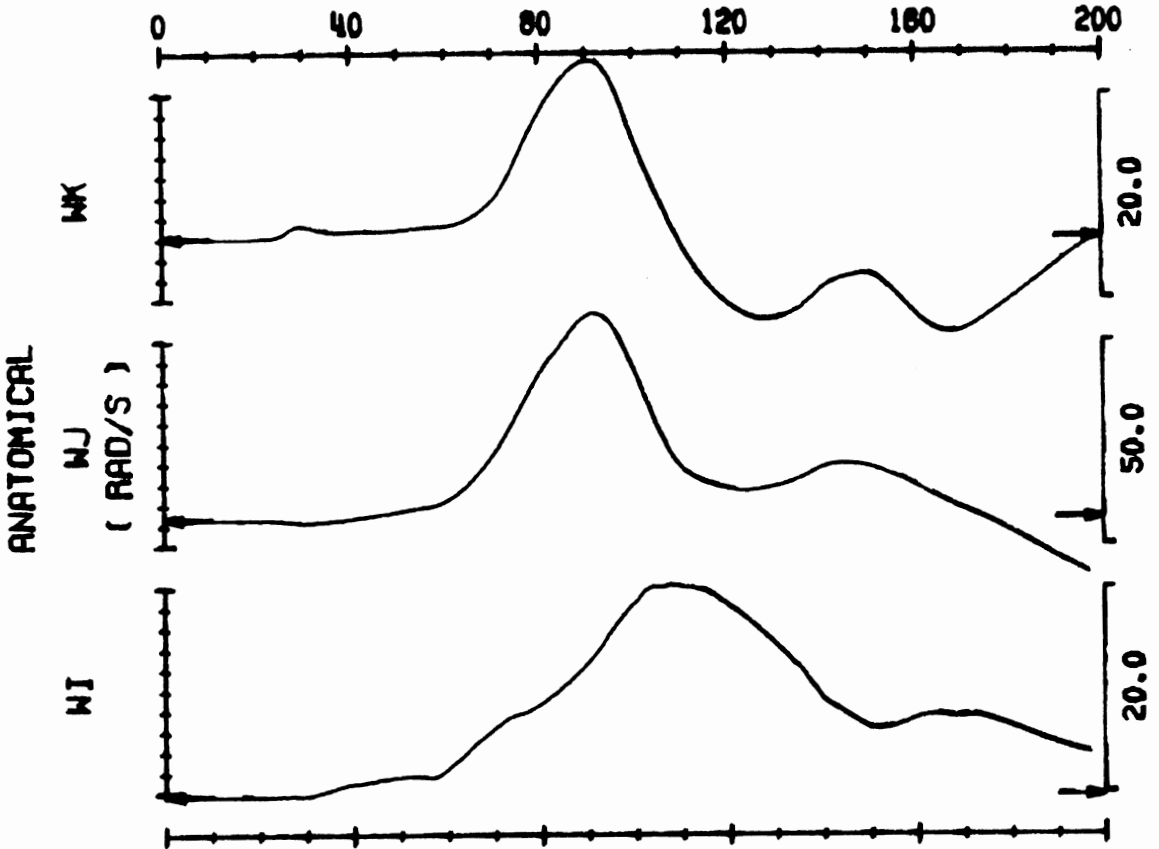
| | | | | | | | |
|----------------|-------|-------|-------|------|-------|------|-------|
| HEAD C.G. ACC: | 34. | -18. | 9. | 1. | 13. | -29. | -3. |
| (G'S) @ | 91.9 | 74.5 | 96.0 | 67.4 | 91.8 | 92.9 | 128.1 |
| HEAD C.G. HIC= | 138 | | | | | | |
| HEAD C.G. VEL: | 555. | -429. | -5. | -2. | 167. | 4. | 368. |
| (IN/S) @ | 163.8 | 125.2 | 44.8 | 79.5 | 169.9 | 47.0 | 167.0 |
| HEAD C.G. DIS: | | | -17.3 | | 3.6 | | 5.1 |
| (IN) @ | | | 127.0 | | 127.0 | | 127.0 |

FILE: 23

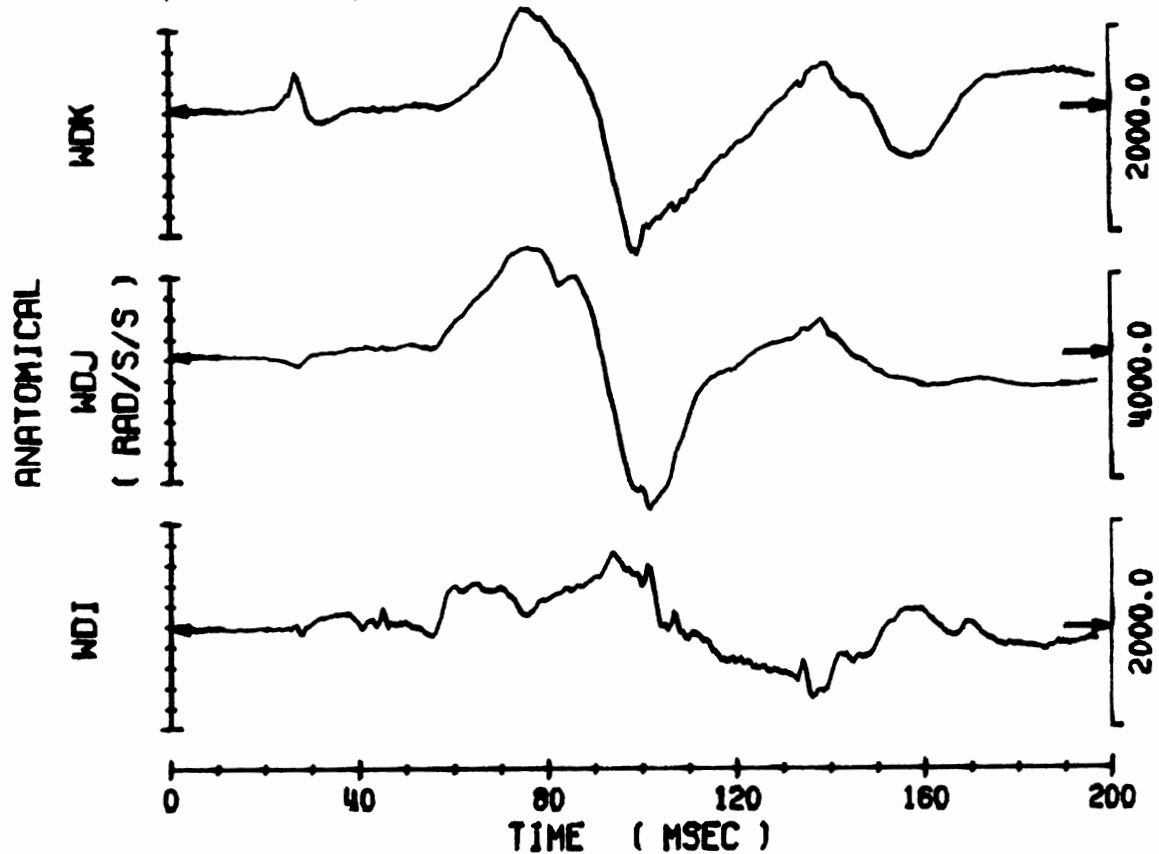
A-869-1: WBR-4



ANG VELOCITIES

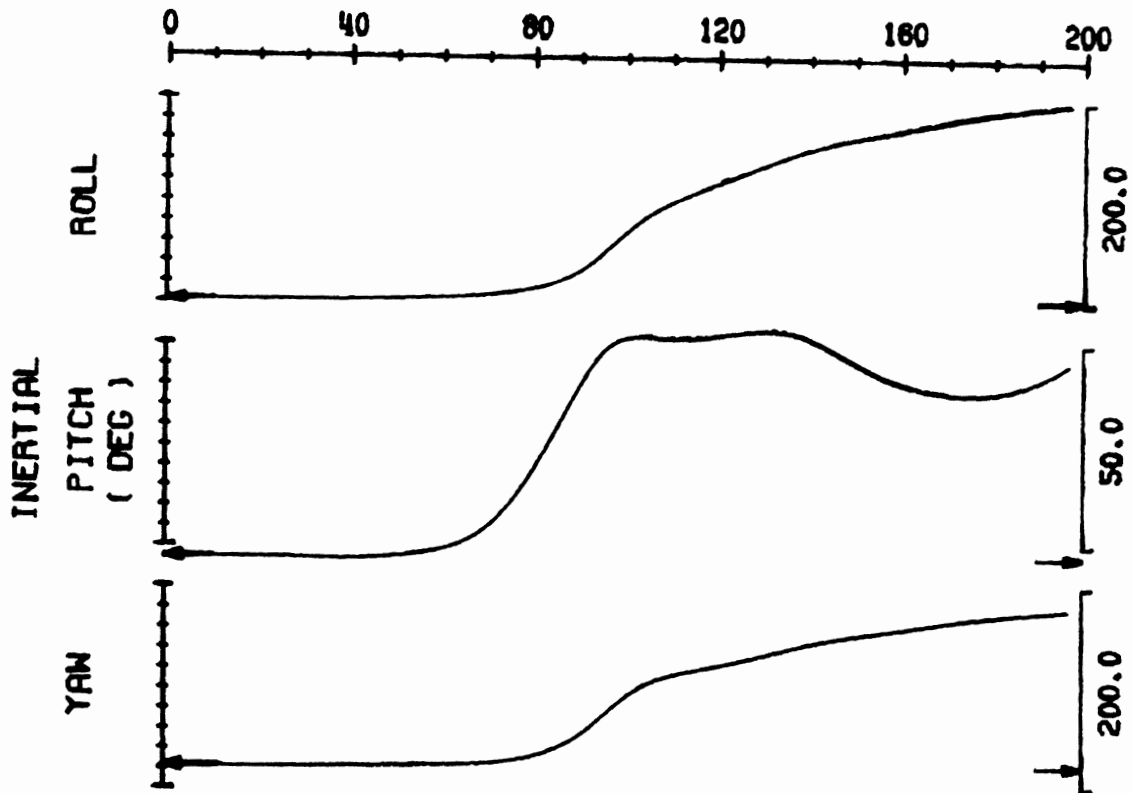


ANG ACCELERATIONS

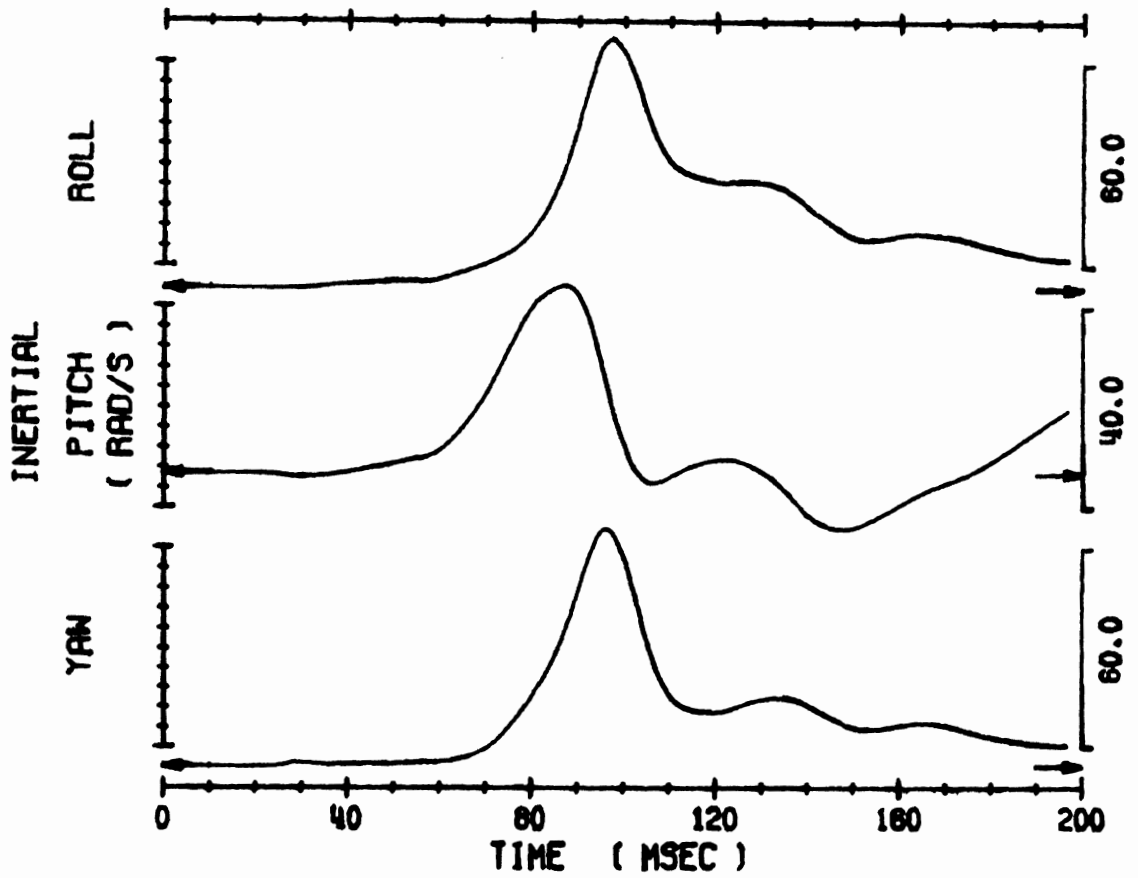


3-D ANGULAR MOTION

EULER ANGLES



EULER RATES

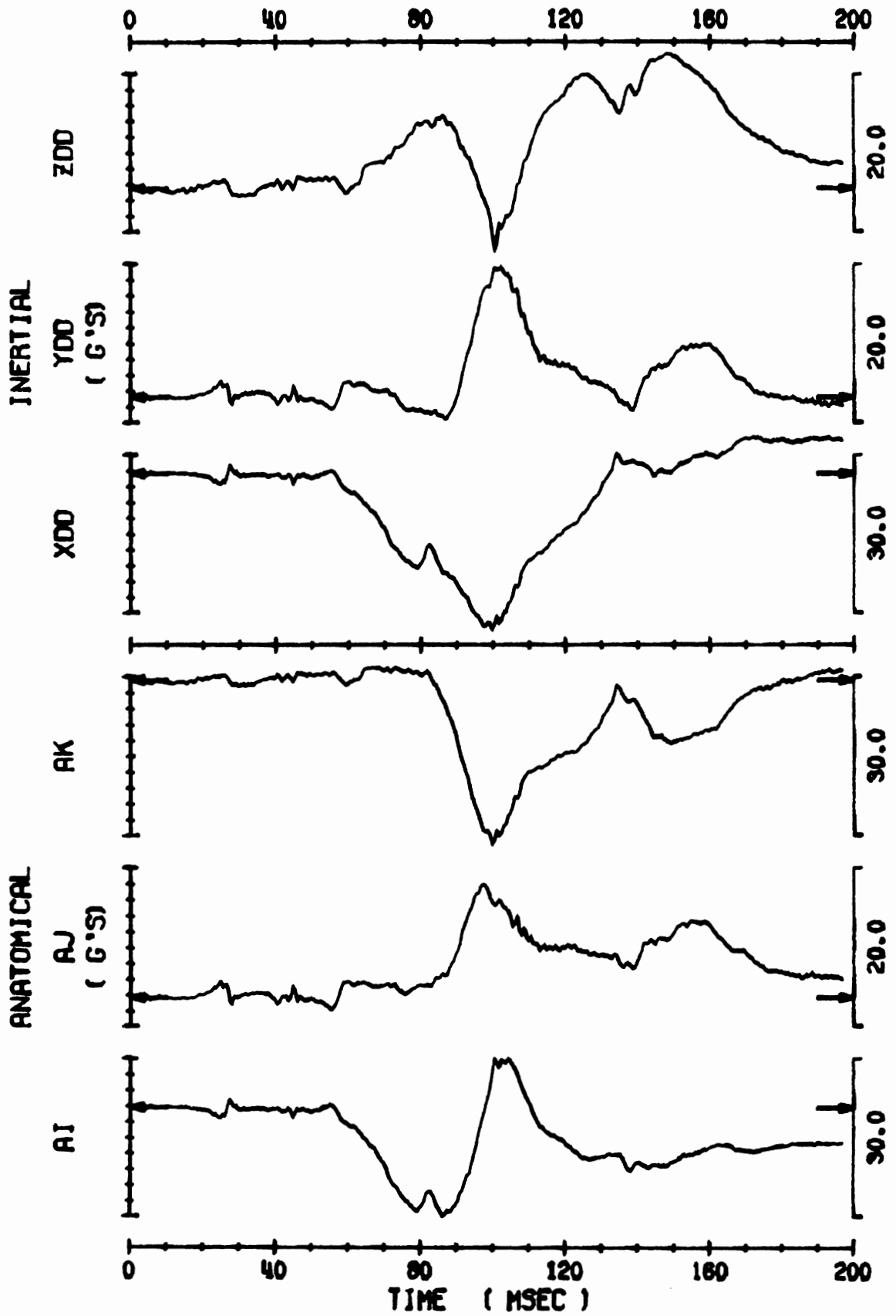


3-D ROTATIONS

ACC OF: ANATOMICAL CENTER GSI= 172, HIC= 138

FILE: 29

A-869-1: WBR-4



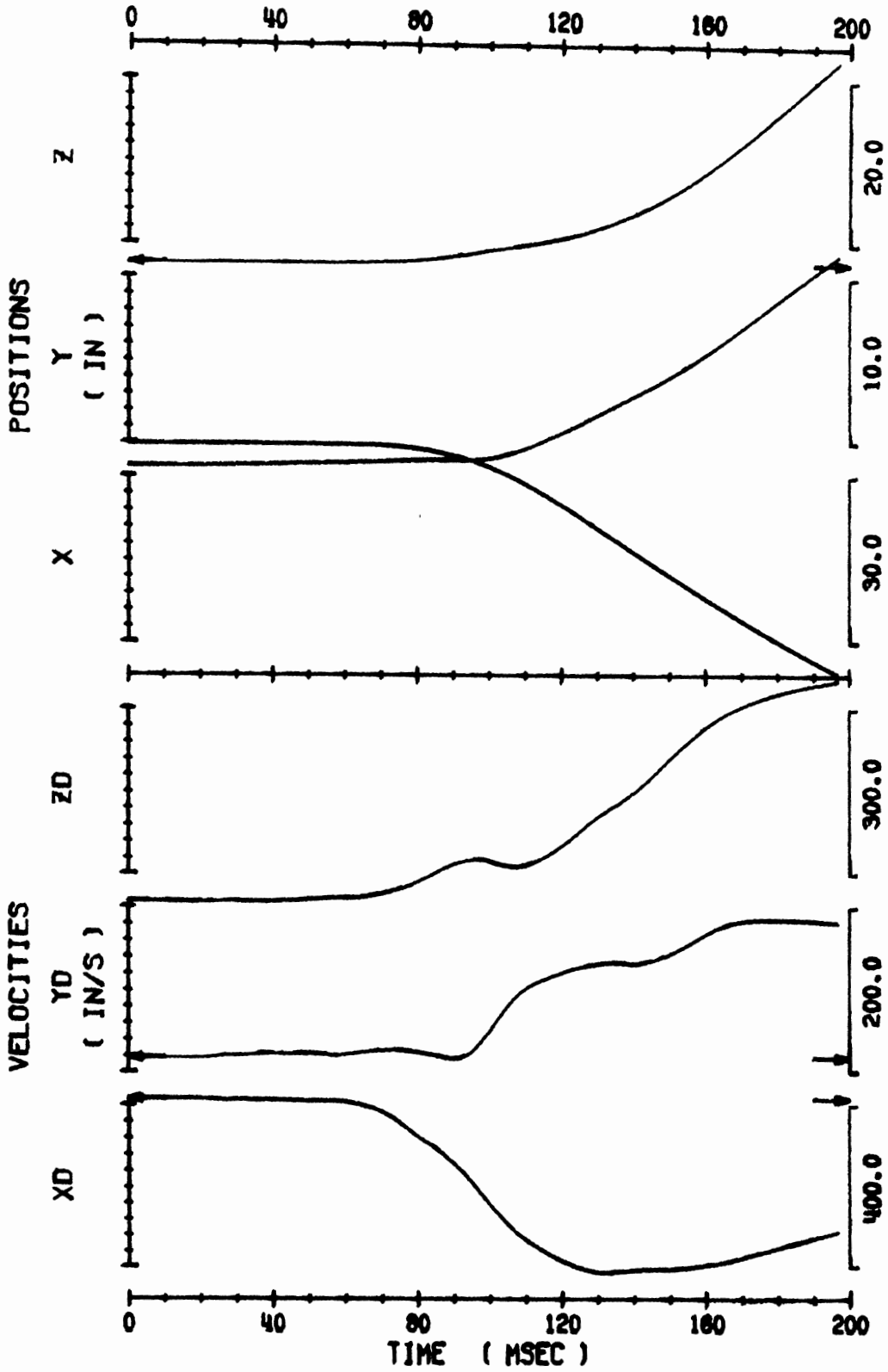
3-D ACCELERATIONS

FILE: 90

A-869-1: WBR-4

ANATOMICAL CENTER

INERTIAL MOTION OF:



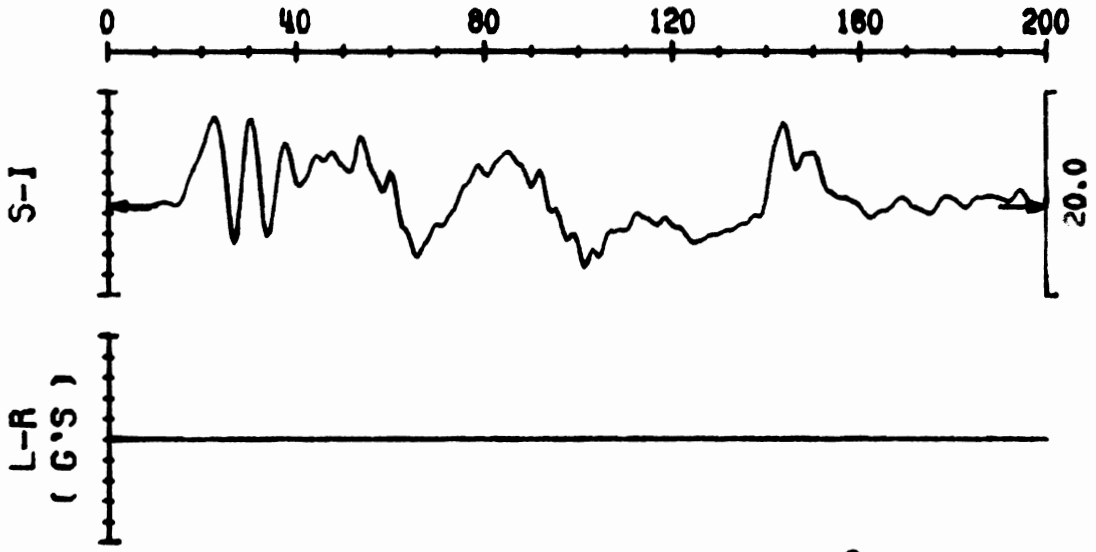
3-D TRANSLATIONS

FILE: 32

A-869-2: WBR-4

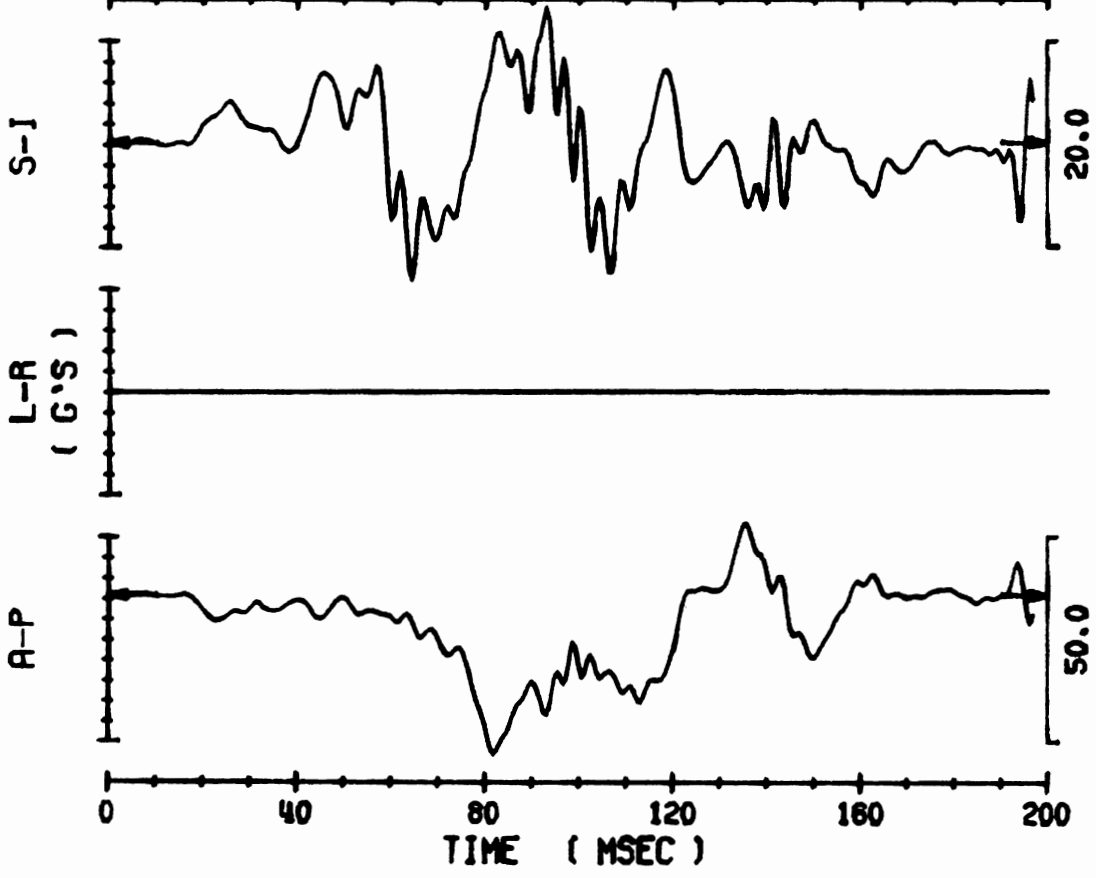
PELVIS

EXTERNAL



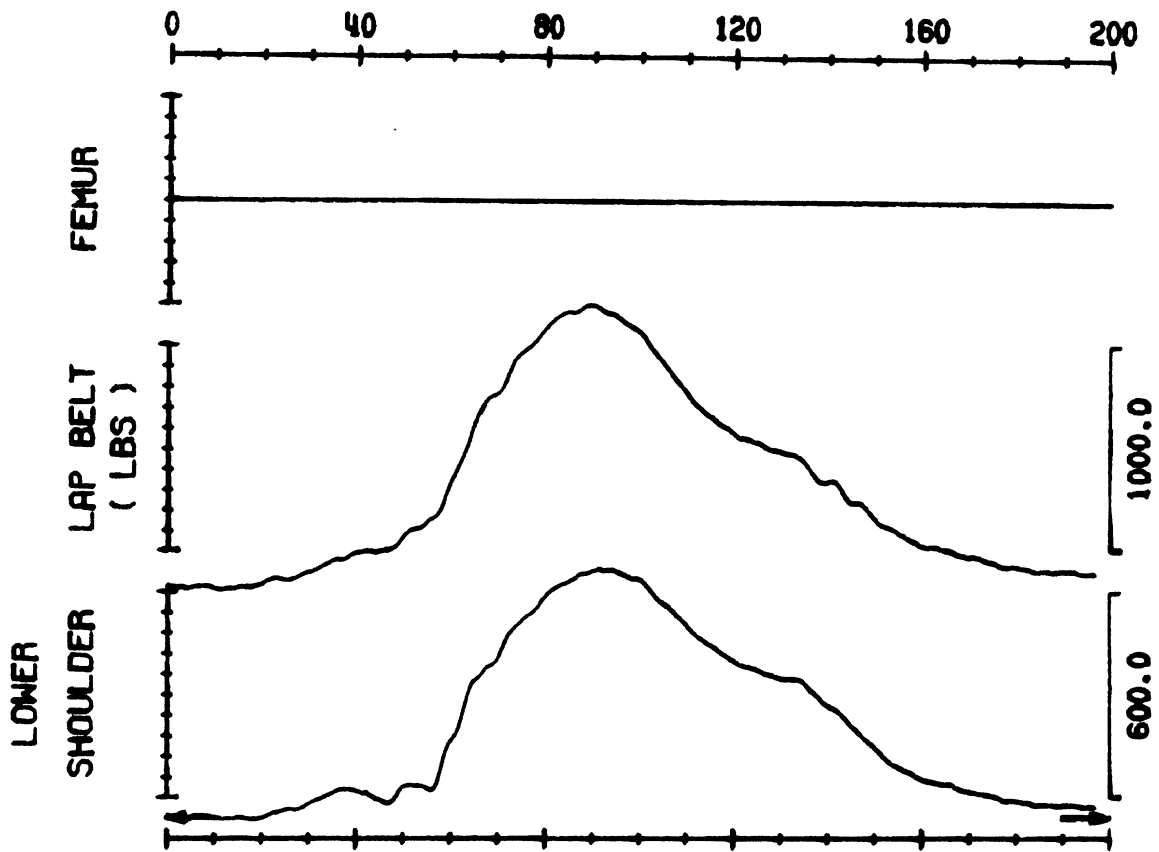
THORAX

EXTERNAL

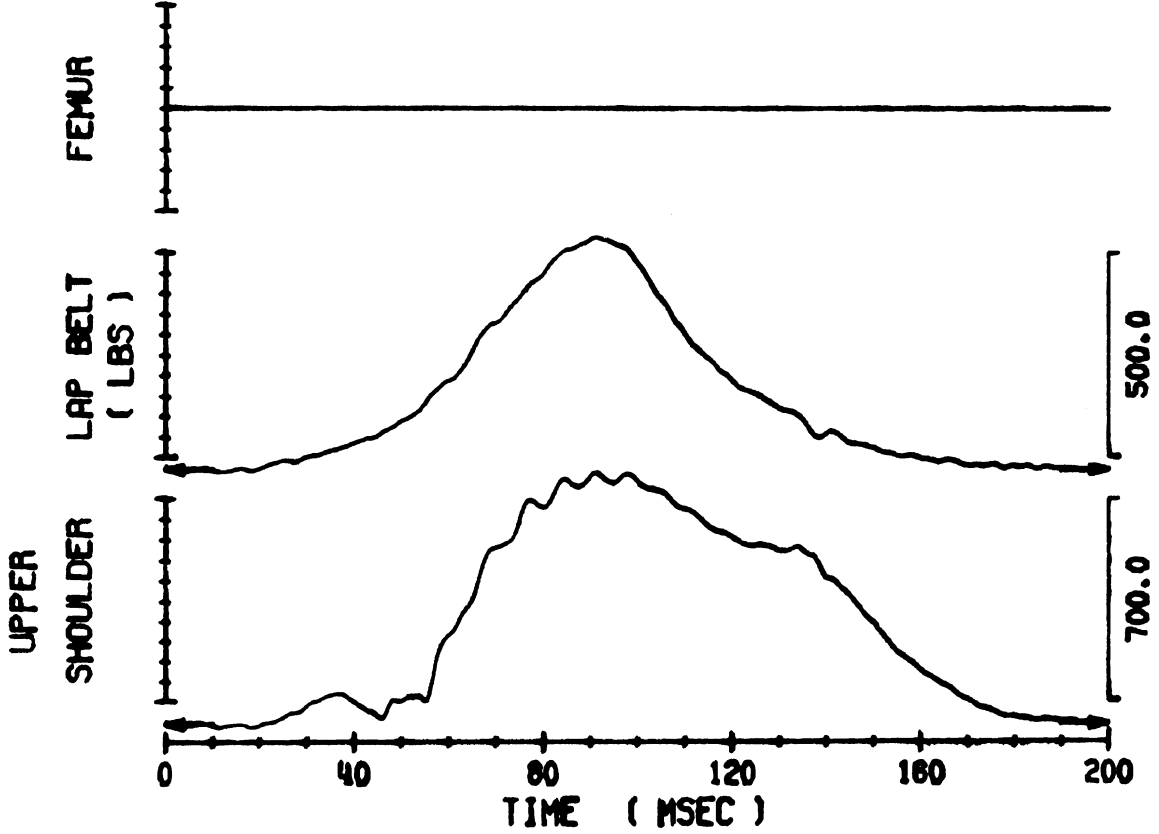


MEASURED ACCELERATIONS

RIGHT SIDE



LEFT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: A-870

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=====

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SUBJECT: WBR-4

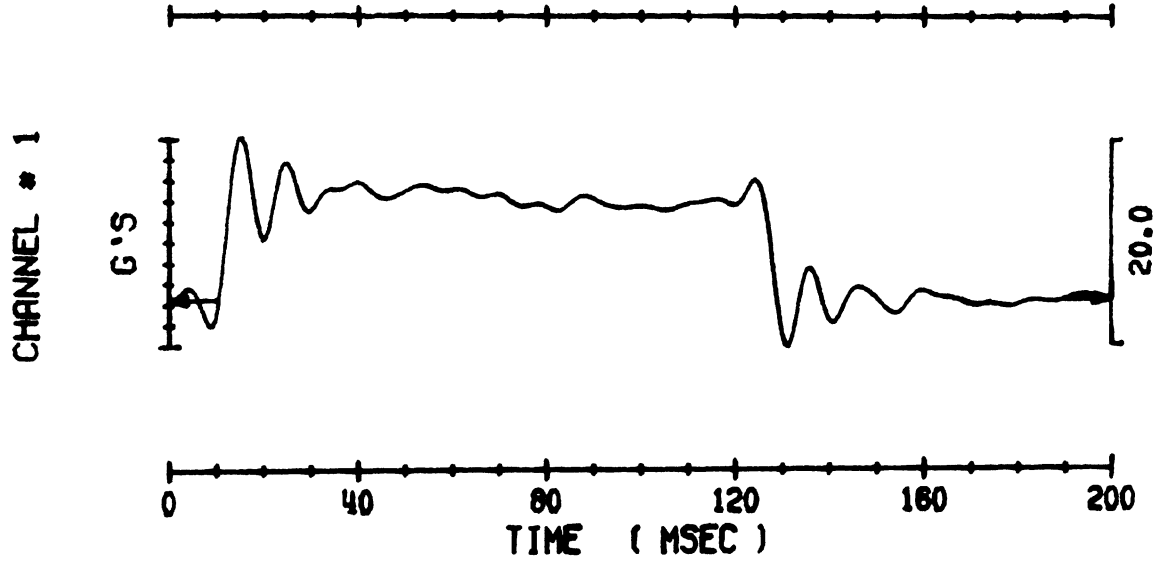
9.9 G-LEVEL
118. MS LONG
24.9 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 961. | 772. | 433. | 1238. | 0. | 0. |
| (LBS) @ (MS) | 86.5 | 83.3 | 73.3 | 80.2 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|--------|-------|--------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 0. | -37. | 12. | 0. | 0. | -11. | 11. |
| (G'S) @ | 0.0 | 74.3 | 129.8 | 0.0 | 0.0 | 58.9 | 73.6 |
| GSI= | 0 | | | | | | |
| EX PELVIS ACC: | 0. | -21. | 3. | 0. | 0. | -7. | 7. |
| (G'S) @ | 0.0 | 71.5 | 143.2 | 0.0 | 0.0 | 83.0 | 140.1 |
| | | | | | | | |
| HEAD ANG ACC : | 3489. | -676. | 561. | -2906. | 1945. | -1273. | 1021. |
| (RAD/S/S) @ | 93.0 | 148.4 | 60.8 | 96.2 | 68.1 | 98.3 | 71.0 |
| HEAD ANG VEL : | 54.5 | 1.1 | 17.9 | 0.5 | 47.1 | -14.0 | 20.5 |
| (RAD/S) @ | 84.9 | 165.1 | 104.7 | 113.2 | 82.5 | 152.6 | 84.0 |
| EULER ANGLES : | | | 70.0 | | 51.2 | | 65.8 |
| (DEGREES) @ | | | 94.2 | | 97.9 | | 94.2 |
| | | | | | | | |
| HEAD C.G. ACC: | 39. | -18. | 10. | 1. | 11. | -34. | 1. |
| (G'S) @ | 93.0 | 74.2 | 98.2 | 73.1 | 93.5 | 93.6 | 131.2 |
| HEAD C.G. HIC= | 160 | | | | | | |
| HEAD C.G. VEL: | 576. | -484. | -4. | -4. | 110. | 36. | 272. |
| (IN/S) @ | 161.8 | 153.3 | 34.2 | 80.3 | 154.2 | 102.6 | 154.2 |
| HEAD C.G. DIS: | | | -5.9 | | 0.5 | | 2.3 |
| (IN) @ | | | 99.2 | | 99.2 | | 99.2 |

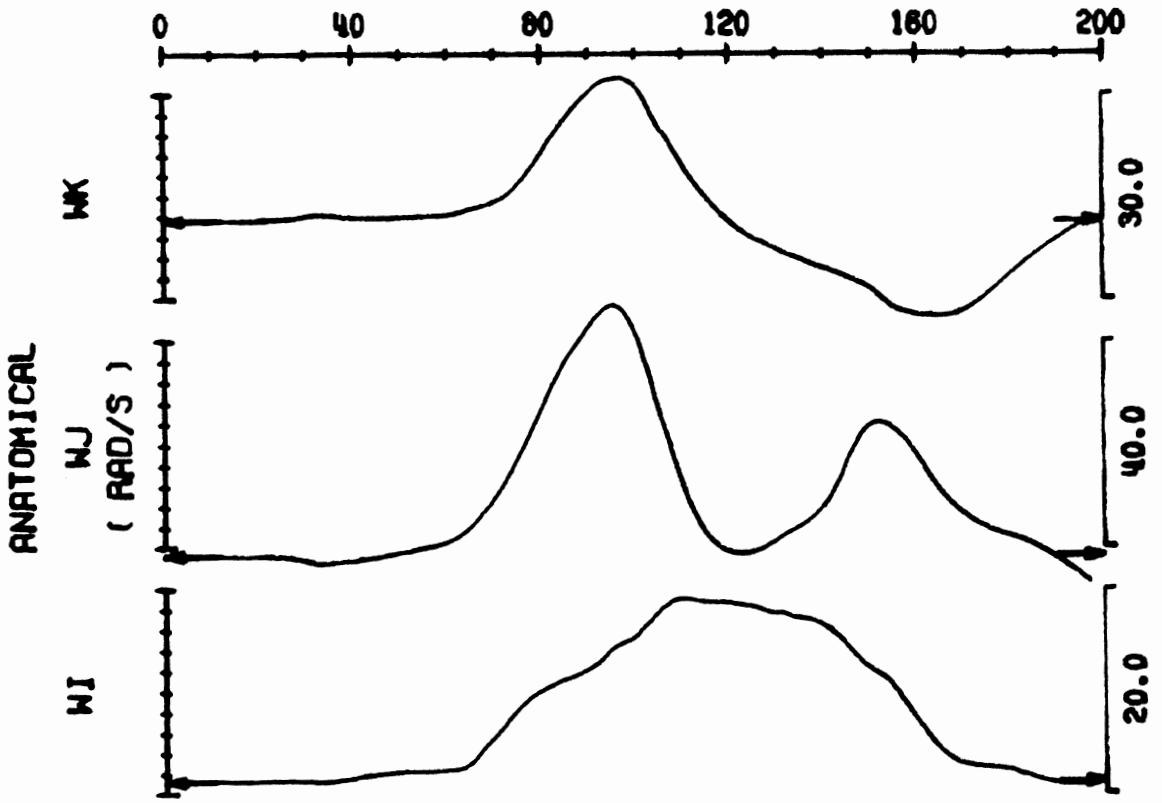
FILE: 34

A-870-1: WBR-4

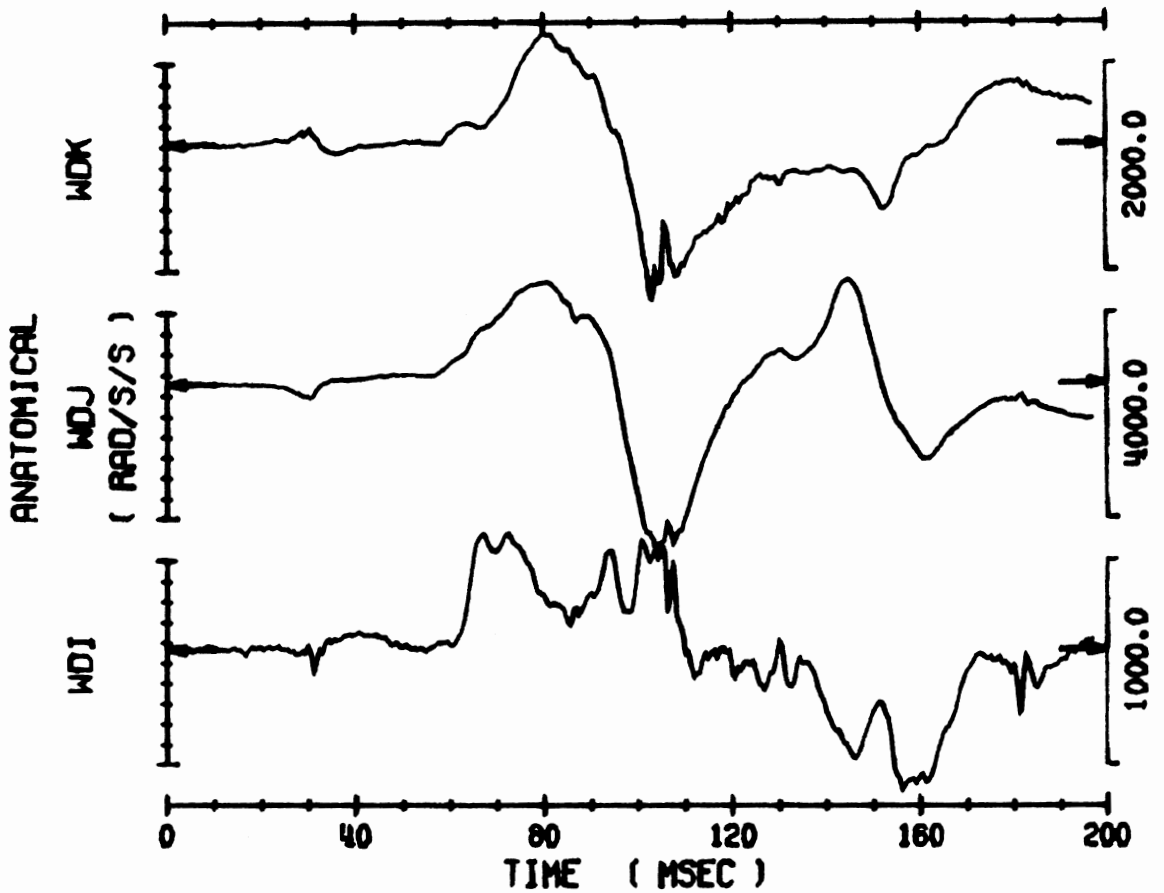


SLED DECELERATION

ANG VELOCITIES

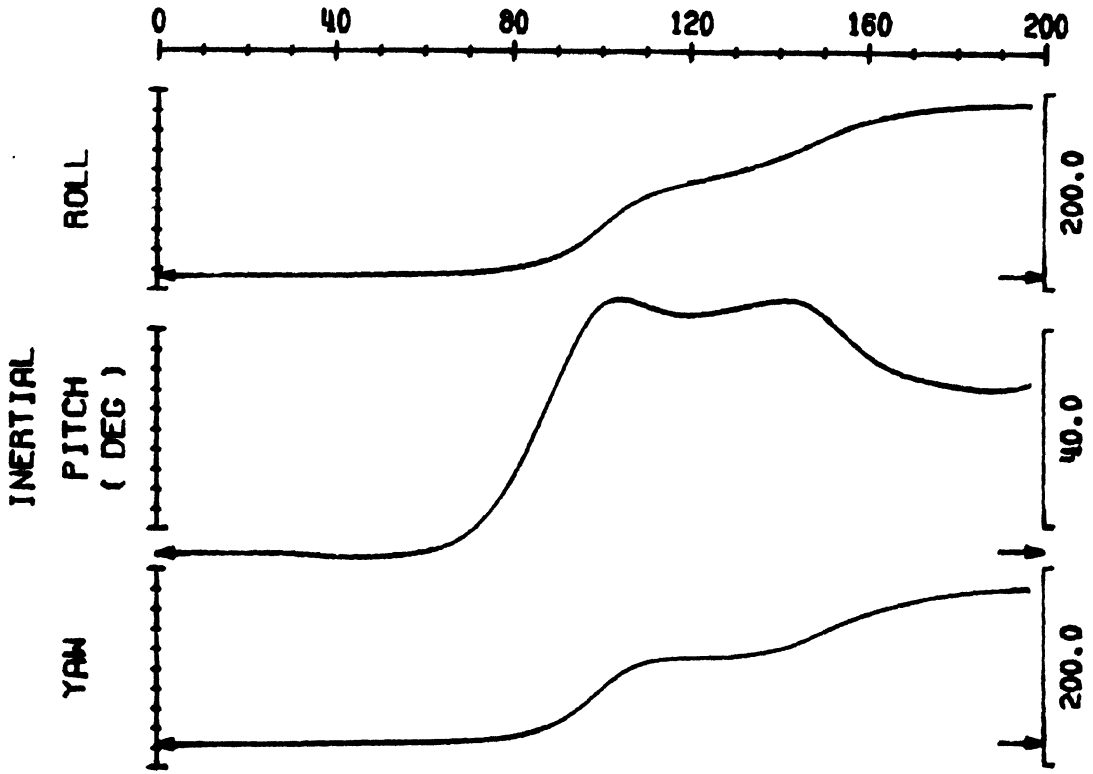


ANG ACCELERATIONS

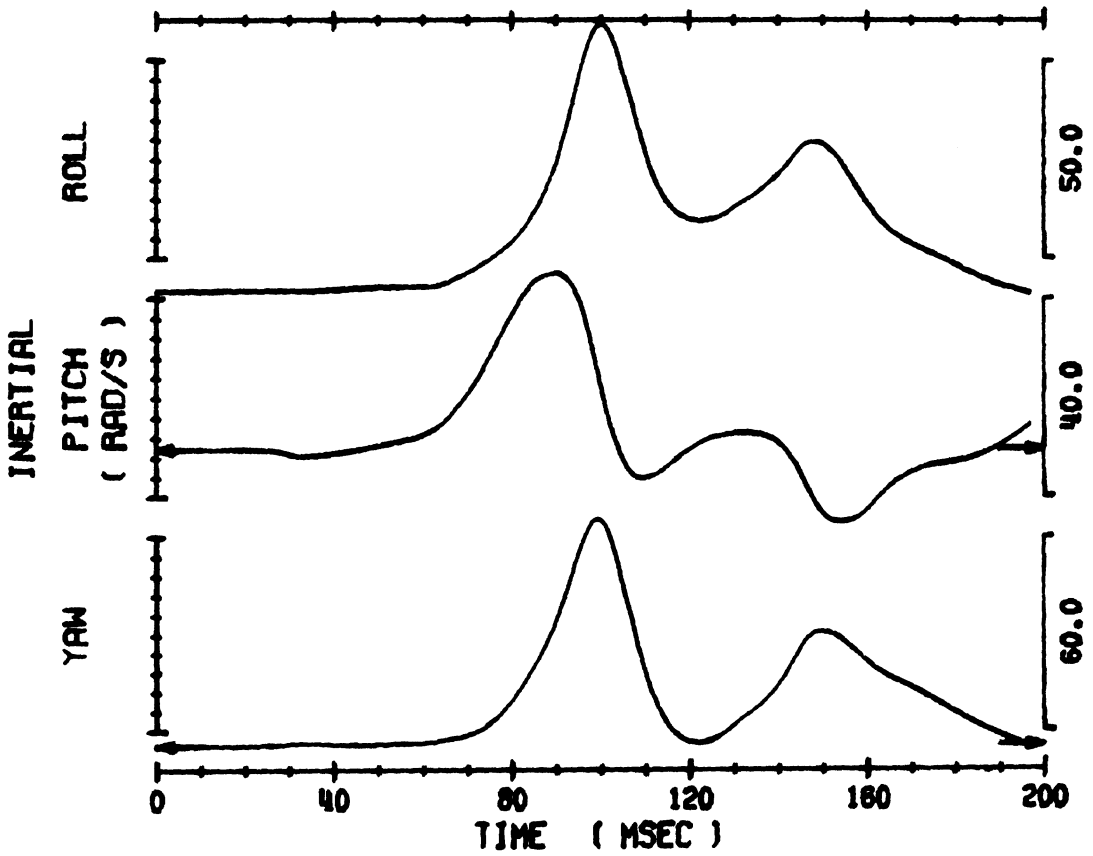


3-D ANGULAR MOTION

EULER ANGLES



EULER RATES

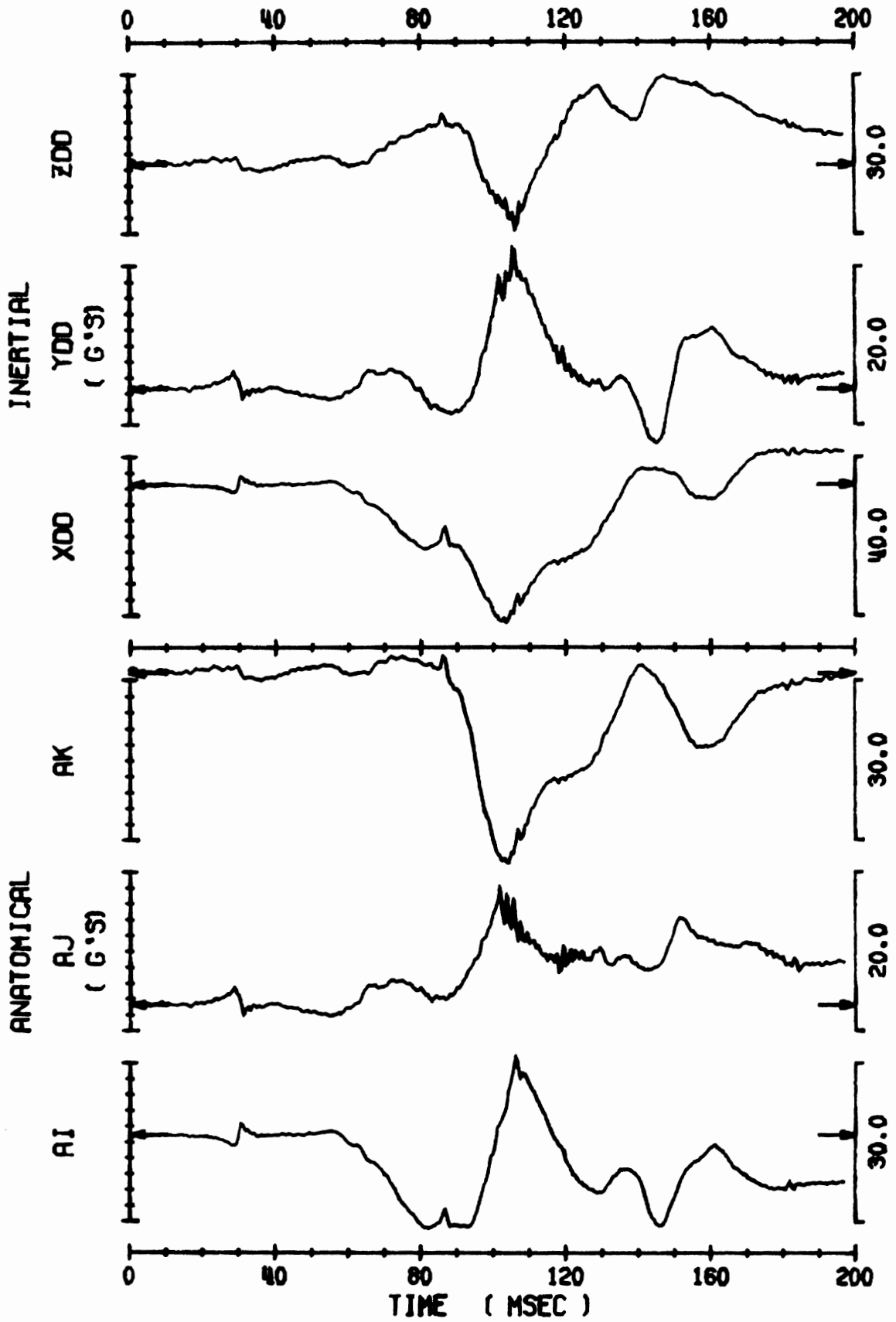


3-D ROTATIONS

ACC OF: ANATOMICAL CENTER GSI= 214. HIC= 160

FILE: 40

A-870-1: WBR-4



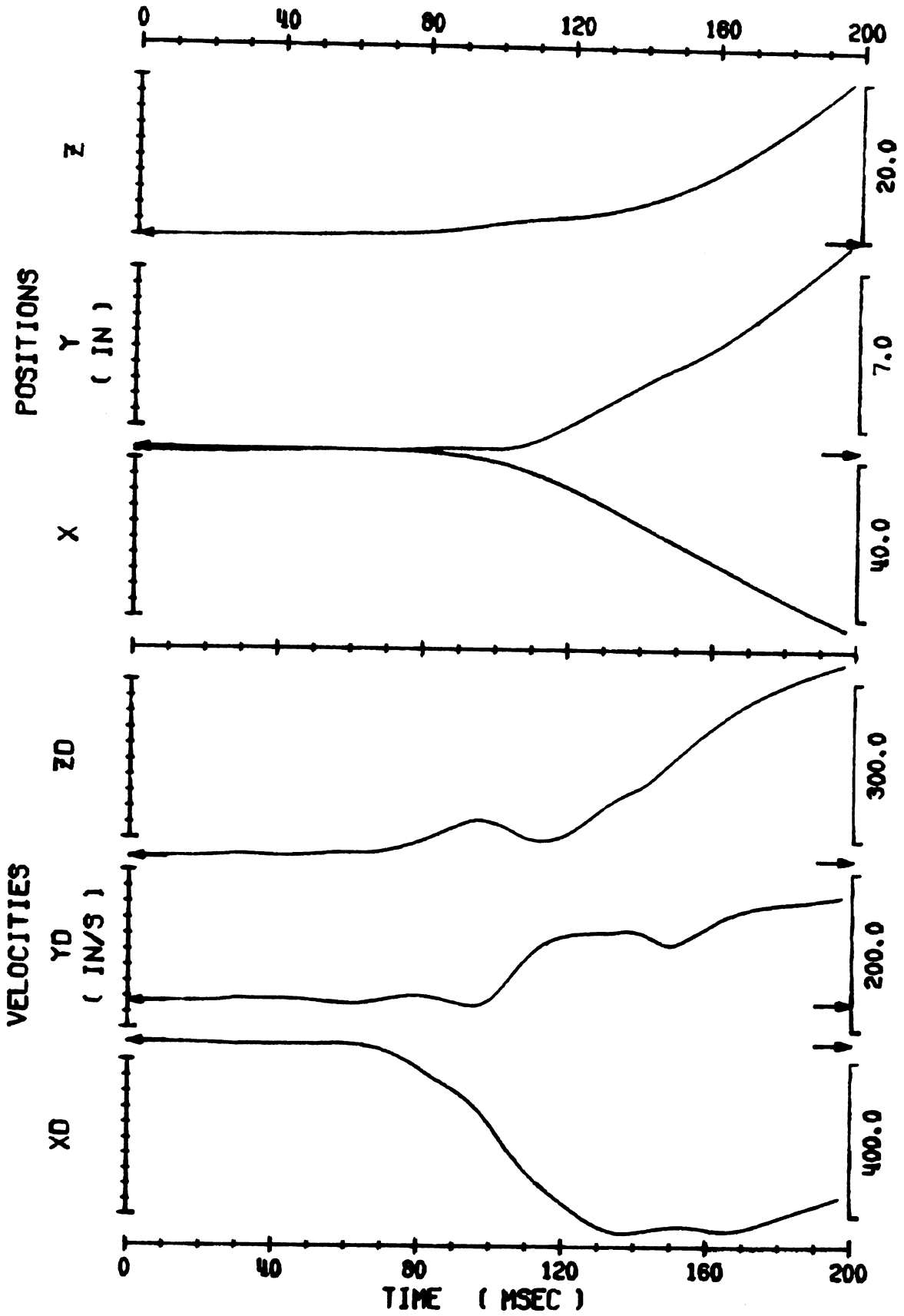
3-D ACCELERATIONS

FILE: 41

A-870-1: WBR-4

ANATOMICAL CENTER

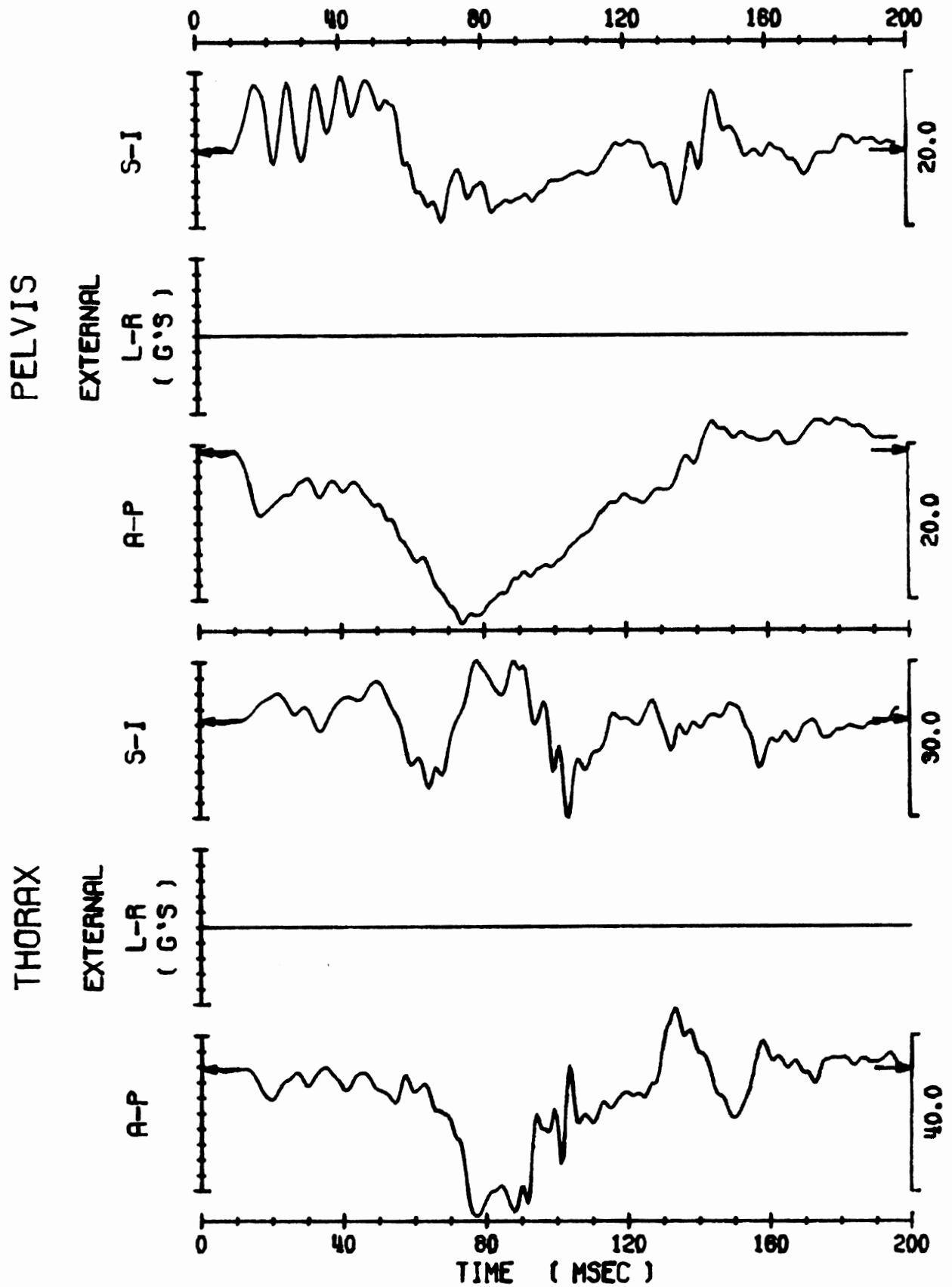
INERTIAL MOTION OF:



3-D TRANSLATIONS

FILE: 43

A-870-2: WBR-4

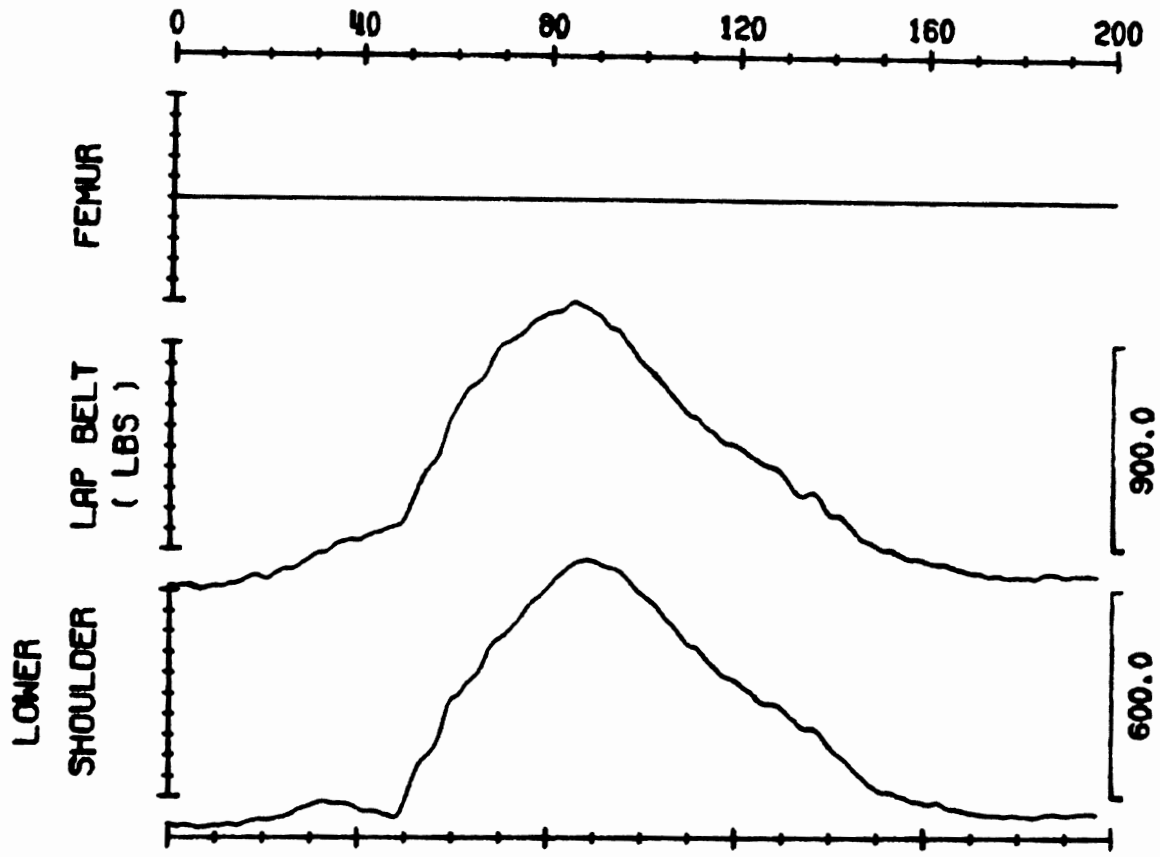


MEASURED ACCELERATIONS

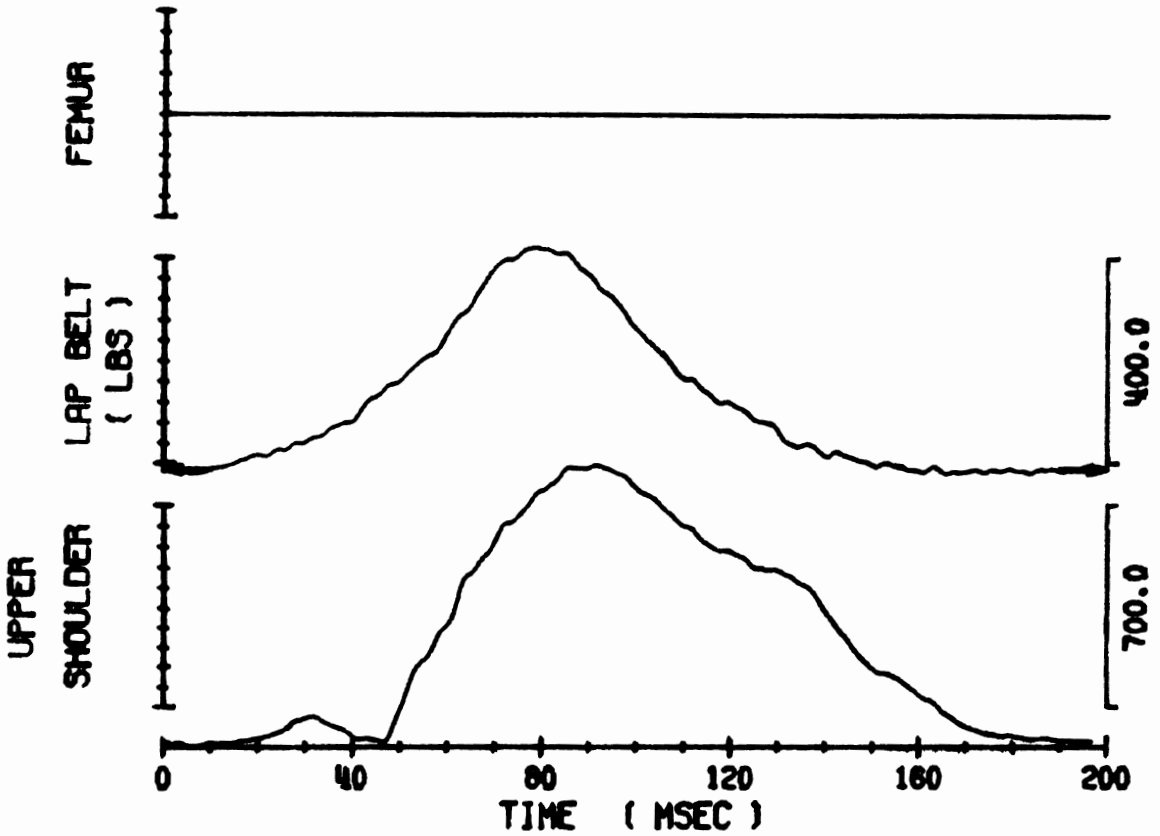
FILE: 44

A-870-2: WBR-4

RIGHT SIDE



LEFT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: A-374
=====

SUBJECT: WBR-5

9.9 G-LEVEL
111. MS LONG
23.0 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1141. | 946. | 582. | 1669. | 0. | 0. |
| (LBS) @ (MS) | 92.1 | 90.2 | 98.3 | 95.8 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|--|-------------------|-------|-----|-------|-----|-------|-----|
| | | MIN | MAX | MIN | MAX | MIN | MAX |

| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |

| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| | | | | | | | |
|----------------|------|------|-------|-------|------|------|------|
| EX THORAX ACC: | 32. | -23. | 4. | -21. | 14. | -10. | 6. |
| (G'S) @ | 87.7 | 74.9 | 153.3 | 116.7 | 82.4 | 59.4 | 67.1 |
| GSI= | 179 | | | | | | |

| | | | | | | | |
|----------------|-----|-------|------|-----|-----|------|------|
| EX PELVIS ACC: | 0. | -3. | 17. | 0. | 0. | 0. | 8. |
| (G'S) @ | 0.0 | 164.2 | 95.6 | 0.0 | 0.0 | 61.4 | 37.3 |

.....

| | | | | | | | |
|----------------|-------|-------|------|--------|-------|-------|-------|
| HEAD ANG ACC : | 1909. | -337. | 530. | -1103. | 1663. | -429. | 837. |
| (RAD/S/S) @ | 62.7 | 169.5 | 98.0 | 114.3 | 63.2 | 164.2 | 121.9 |

| | | | | | | | |
|----------------|-------|------|-------|-------|------|-------|-------|
| HEAD ANG VEL : | 33.1 | 0.3 | 15.0 | -10.0 | 31.7 | -2.2 | 10.4 |
| (RAD/S) @ | 101.4 | 74.6 | 148.7 | 177.1 | 97.9 | 103.5 | 135.8 |

| | | | | | | | |
|----------------|--|--|-------|--|-------|--|-------|
| EULER ANGLES : | | | 82.3 | | 77.2 | | 119.9 |
| (DEGREES) @ | | | 149.0 | | 125.7 | | 165.9 |

.....

| | | | | | | | |
|----------------|------|------|-------|------|-------|-------|-------|
| HEAD C.G. ACC: | 23. | -17. | -8. | -0. | 7. | -19. | 2. |
| (G'S) @ | 88.0 | 86.7 | 110.4 | 68.1 | 163.0 | 106.1 | 169.6 |

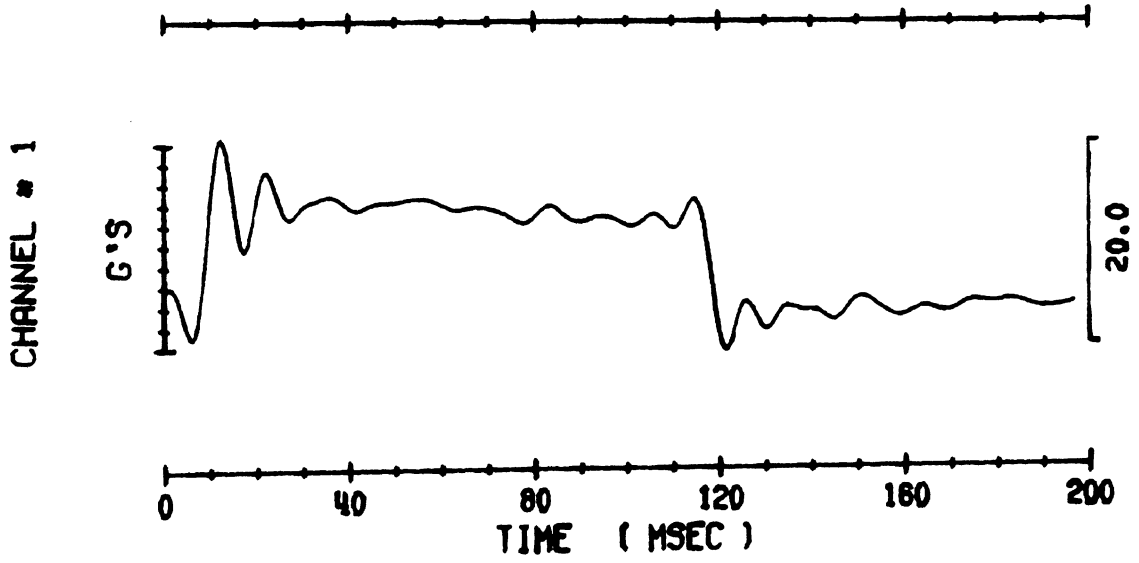
HEAD C.G. HIC= 101

| | | | | | | | |
|----------------|-------|-------|------|------|-------|-------|-------|
| HEAD C.G. VEL: | 488. | -456. | -3. | -7. | 79. | -36. | 162. |
| (IN/S) @ | 188.9 | 150.2 | 37.1 | 79.6 | 158.3 | 105.0 | 157.1 |

| | | | | | | | |
|----------------|--|--|-------|--|-------|--|-------|
| HEAD C.G. DIS: | | | -14.8 | | 0.7 | | -0.6 |
| (IN) @ | | | 127.1 | | 127.1 | | 123.4 |

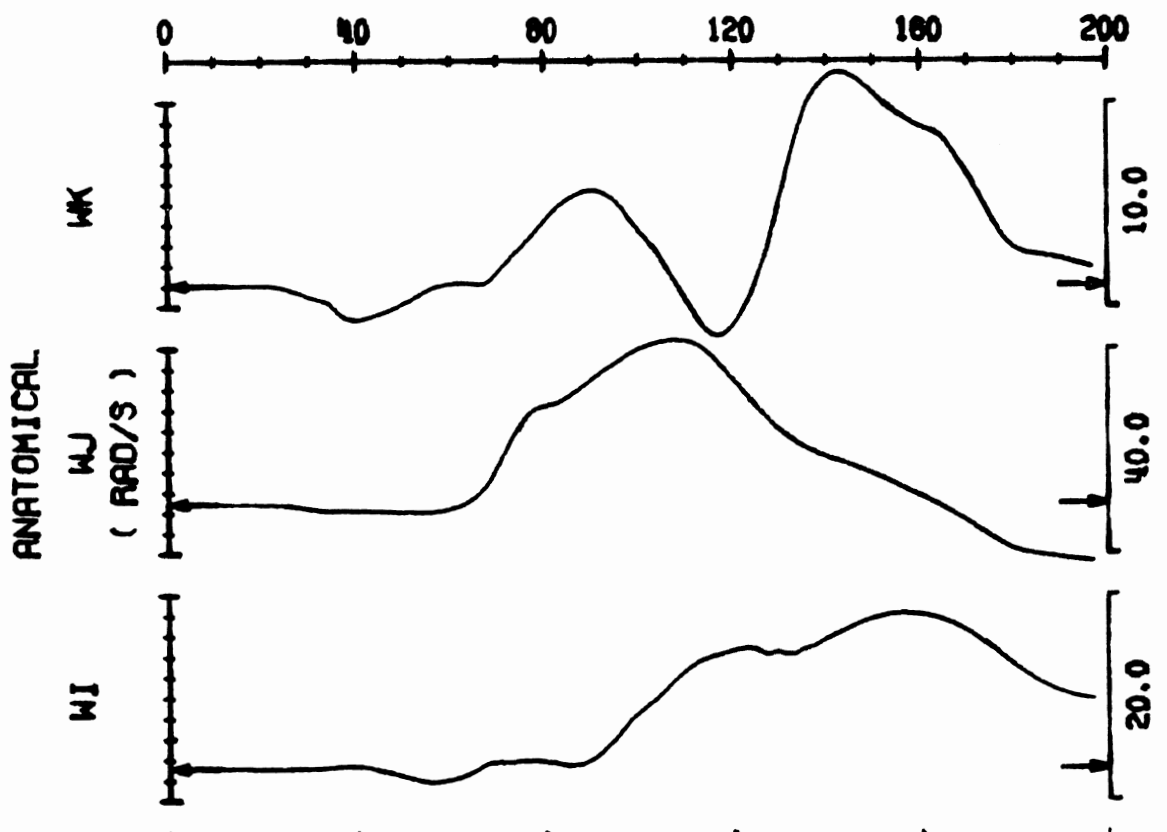
FILE: 45

A-874-1: WBR-5

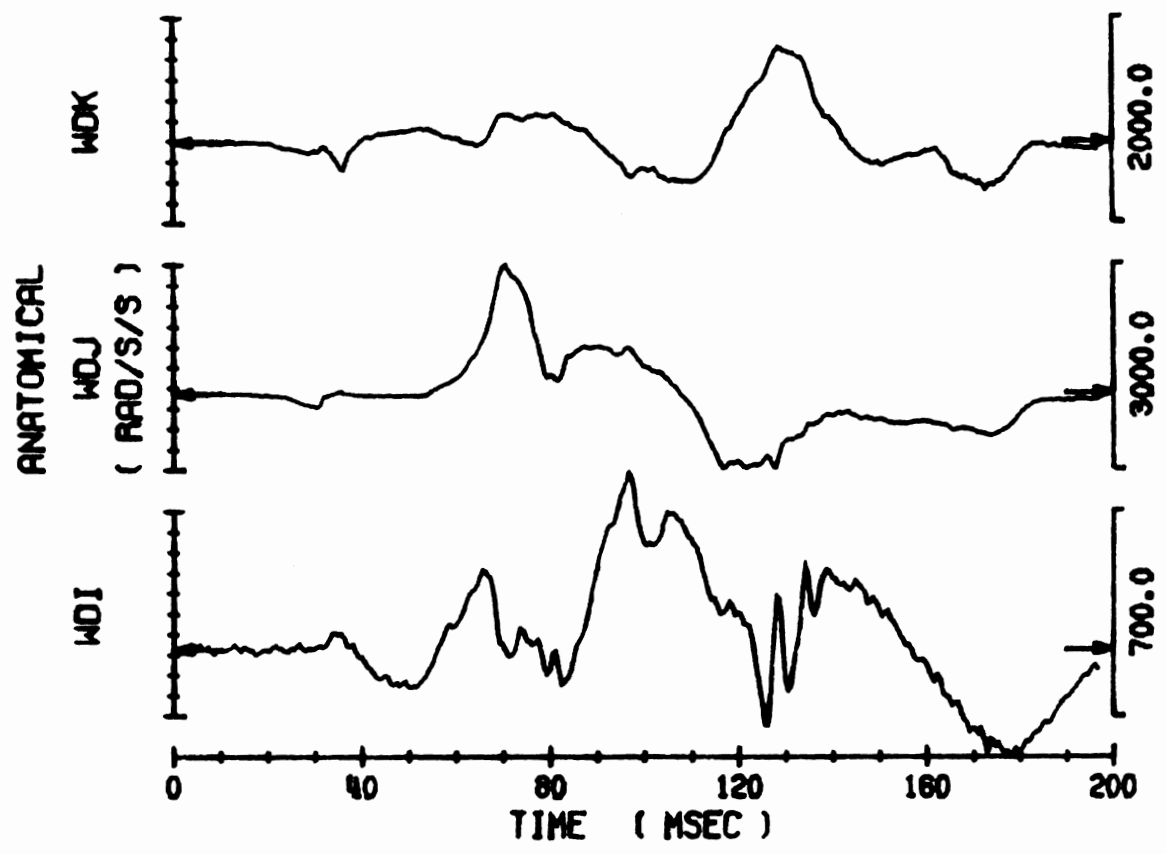


SLED DECELERATION

ANG VELOCITIES



ANG ACCELERATIONS

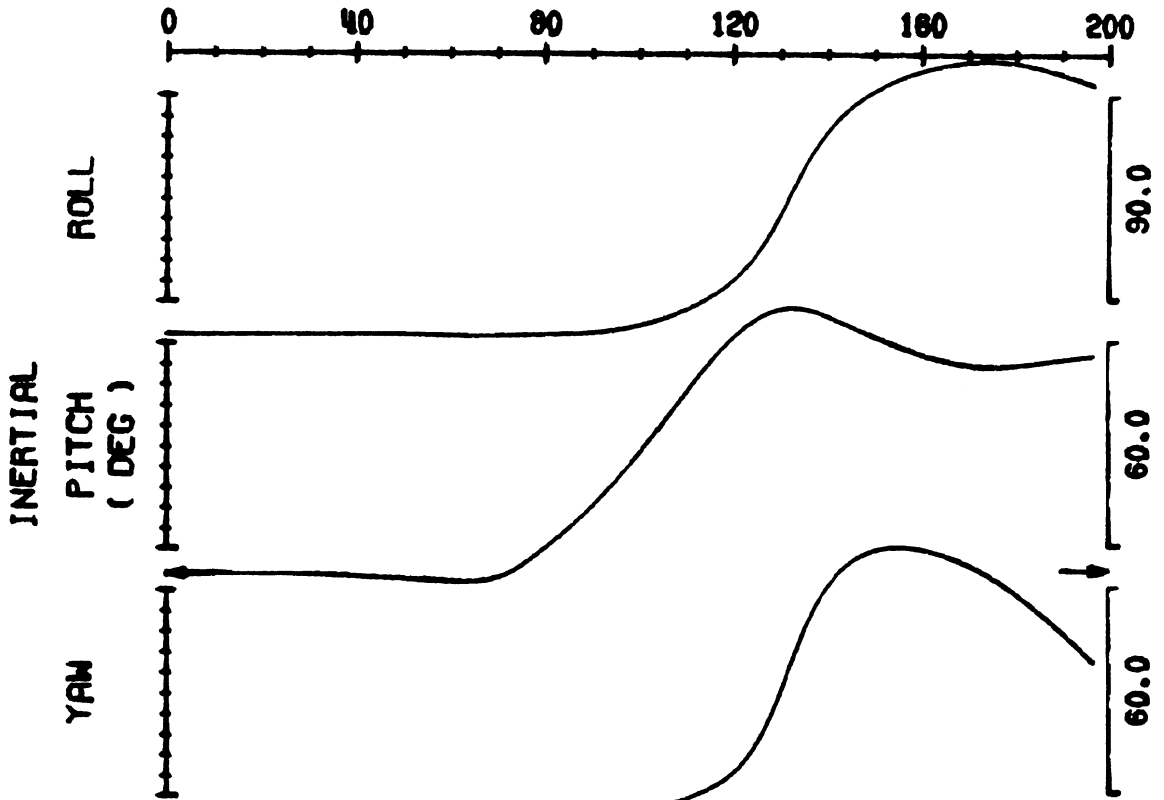


3-D ANGULAR MOTION

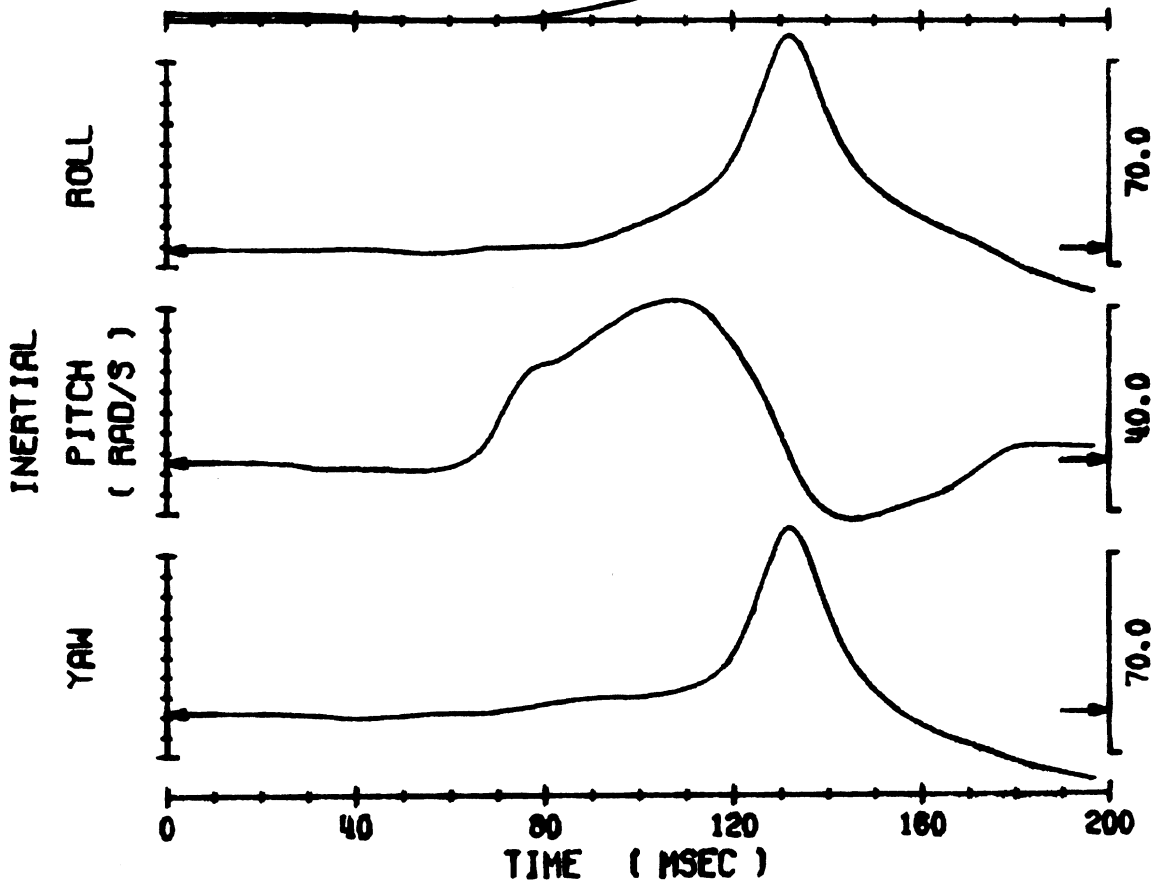
FILE: 50

A-874-1: WBR-5

EULER ANGLES



EULER RATES

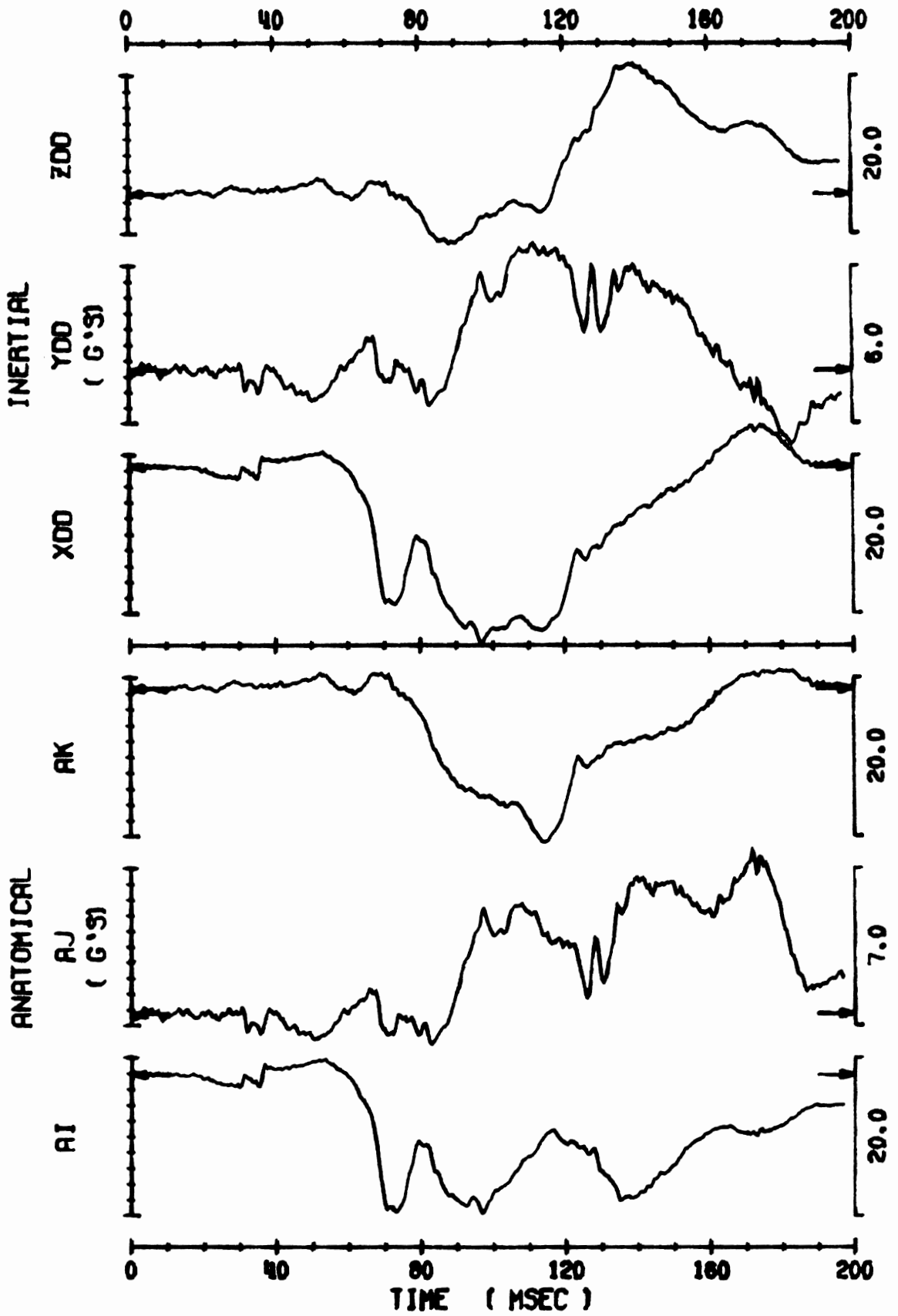


3-D ROTATIONS

ACC OF: ANATOMICAL CENTER GSI= 117, HIC= 101

FILE: 51

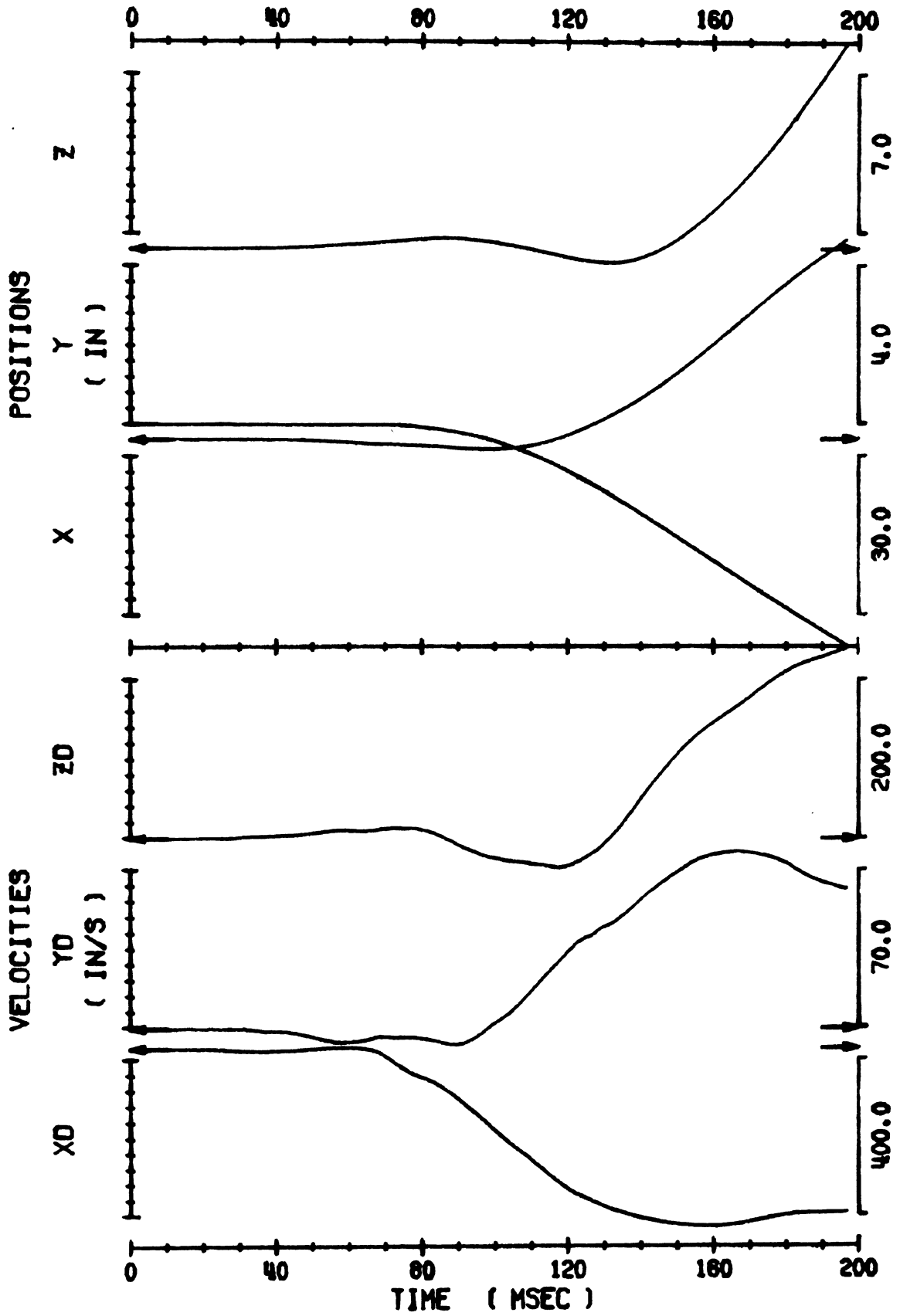
A-874-1: WBR-5



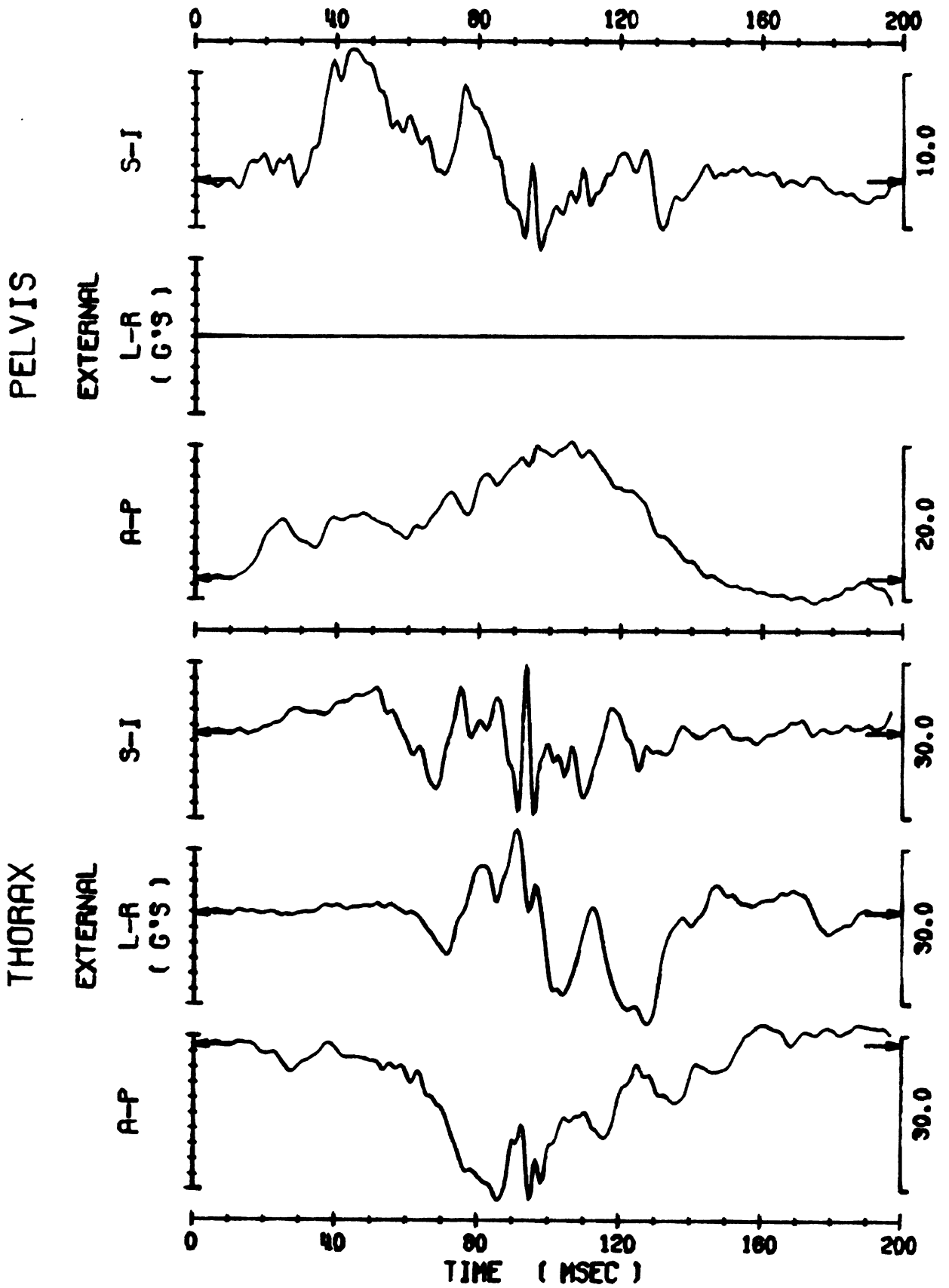
3-D ACCELERATIONS

ANATOMICAL CENTER

INERTIAL MOTION OF:



3-D TRANSLATIONS

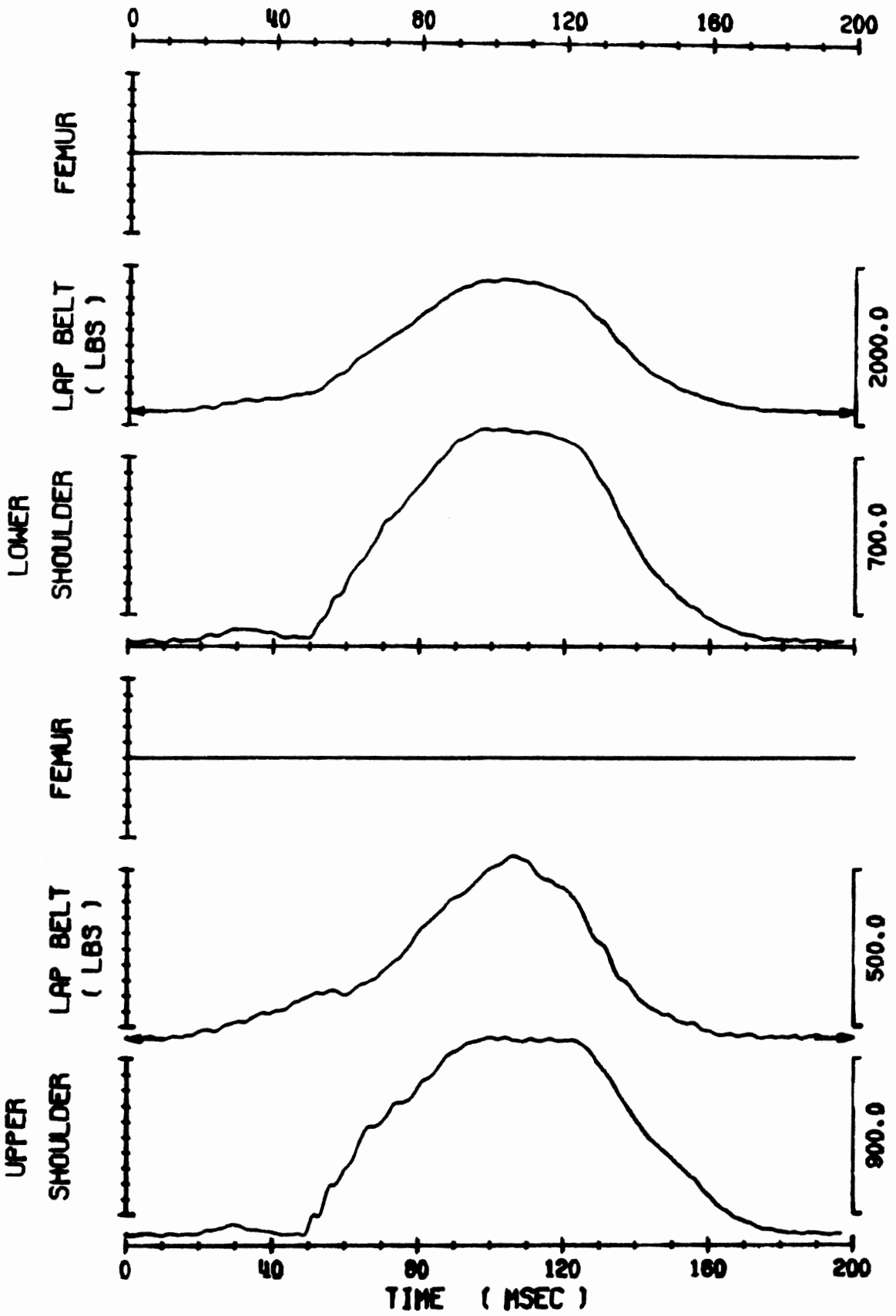


MEASURED ACCELERATIONS

FILE: 54

A-874-2: WBR-5

RIGHT SIDE



LEFT SIDE

MEASURED FORCES

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: A-875

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SUBJECT: WBR-5

9.4 G-LEVEL
115. MS LONG
21.5 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1120. | 971. | 860. | 1872. | 0. | 0. |
| (LBS) @ (MS) | 95.9 | 95.3 | 91.5 | 91.5 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|--|-------------------|-------|-----|-------|-----|-------|-----|
| | | MIN | MAX | MIN | MAX | MIN | MAX |

| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |

| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| | | | | | | | |
|----------------|------|------|-------|-------|-------|------|------|
| EX THORAX ACC: | 33. | -30. | 3. | -18. | 6. | -7. | 10. |
| (G'S) @ | 89.0 | 85.8 | 143.0 | 123.0 | 159.7 | 53.9 | 68.6 |
| GSI= | 207 | | | | | | |

| | | | | | | | |
|----------------|-----|-------|------|-----|-----|------|------|
| EX PELVIS ACC: | 0. | -2. | 20. | 0. | 0. | -1. | 7. |
| (G'S) @ | 0.0 | 165.2 | 91.3 | 0.0 | 0.0 | 58.2 | 71.9 |

.....

| | | | | | | | |
|----------------|-------|-------|------|-------|-------|-------|------|
| HEAD ANG ACC : | 2817. | -230. | 811. | -976. | 2428. | -679. | 465. |
| (RAD/S/S) @ | 64.0 | 115.5 | 97.3 | 112.2 | 65.9 | 100.4 | 70.1 |

| | | | | | | | |
|----------------|------|------|-------|------|------|-------|------|
| HEAD ANG VEL : | 41.1 | -0.3 | 15.9 | -0.5 | 40.3 | -2.0 | 8.7 |
| (RAD/S) @ | 94.6 | 80.5 | 141.7 | 37.6 | 93.0 | 112.8 | 87.5 |

| | | | | | | | |
|----------------|--|--|-------|--|-------|--|-------|
| EULER ANGLES : | | | 142.1 | | 78.8 | | 162.7 |
| (DEGREES) @ | | | 130.5 | | 113.4 | | 157.7 |

.....

| | | | | | | | |
|----------------|------|------|-------|------|-------|-------|-------|
| HEAD C.G. ACC: | 25. | -17. | -4. | -5. | 7. | -16. | -0. |
| (G'S) @ | 64.6 | 71.2 | 177.2 | 75.6 | 137.3 | 103.9 | 169.7 |

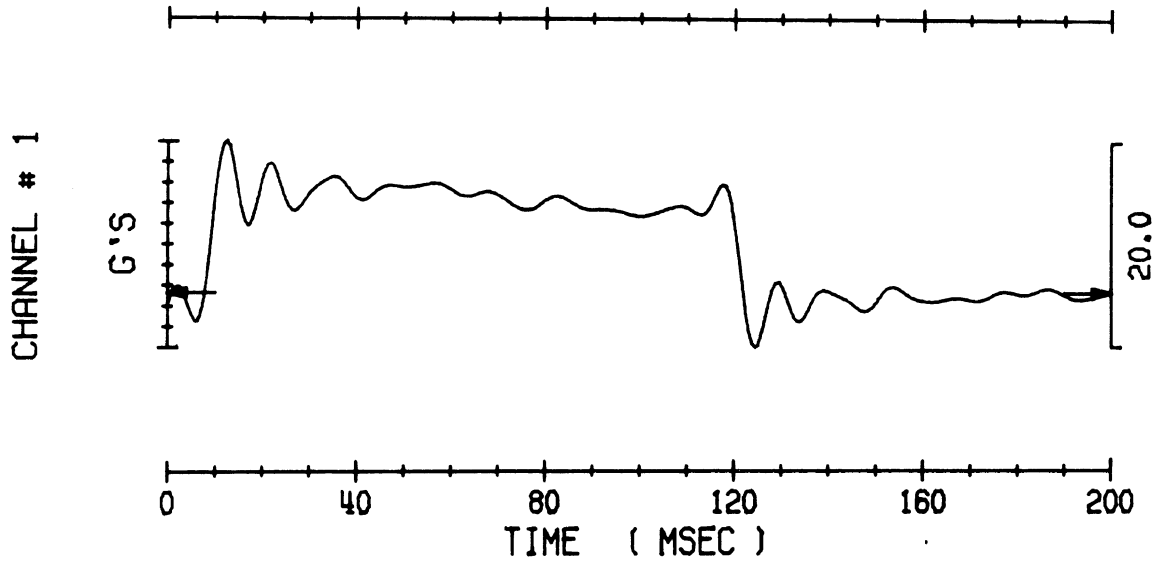
HEAD C.G. HIC= 106

| | | | | | | | |
|----------------|-------|-------|------|-------|------|------|-------|
| HEAD C.G. VEL: | 513. | -369. | -9. | -46. | -3. | 8. | 205. |
| (IN/S) @ | 189.0 | 123.9 | 38.6 | 128.4 | 37.2 | 37.2 | 128.7 |

| | | | | | | | |
|----------------|--|--|-------|--|-------|--|-------|
| HEAD C.G. DIS: | | | -11.7 | | -1.7 | | 4.2 |
| (IN) @ | | | 117.2 | | 117.2 | | 117.2 |

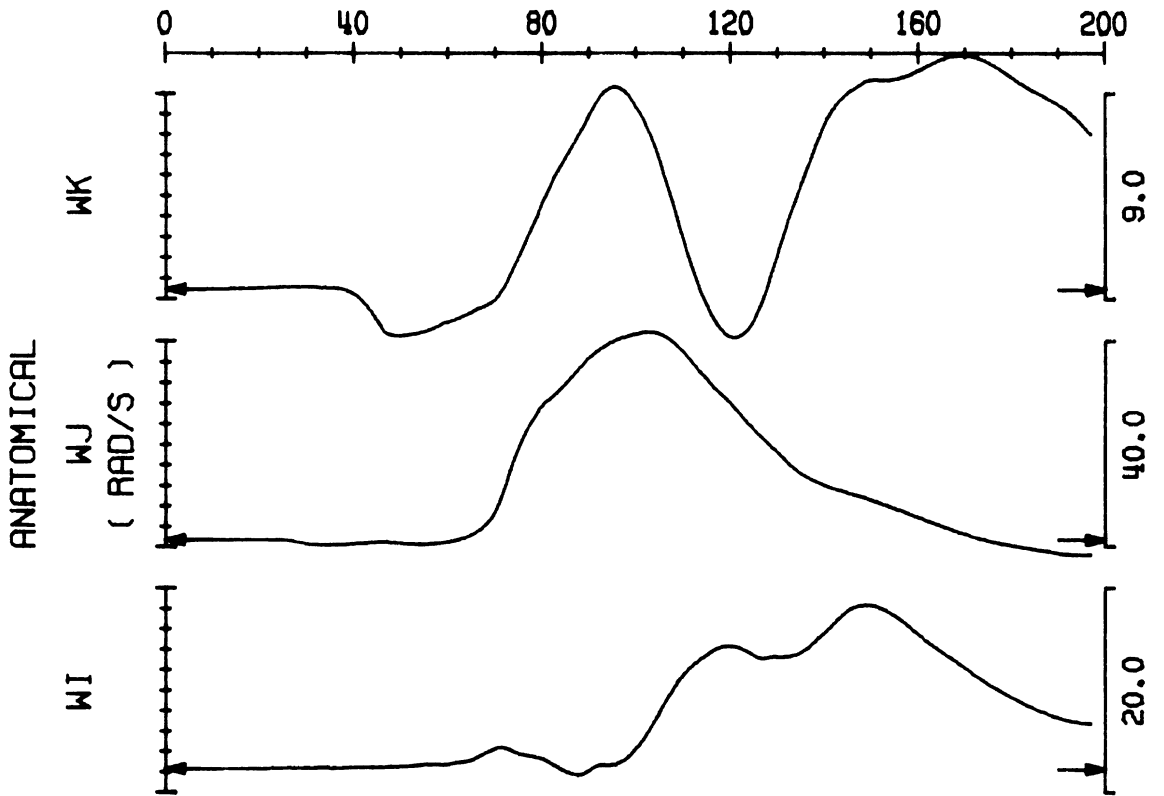
FILE: 55

A-875-1: WBR-5

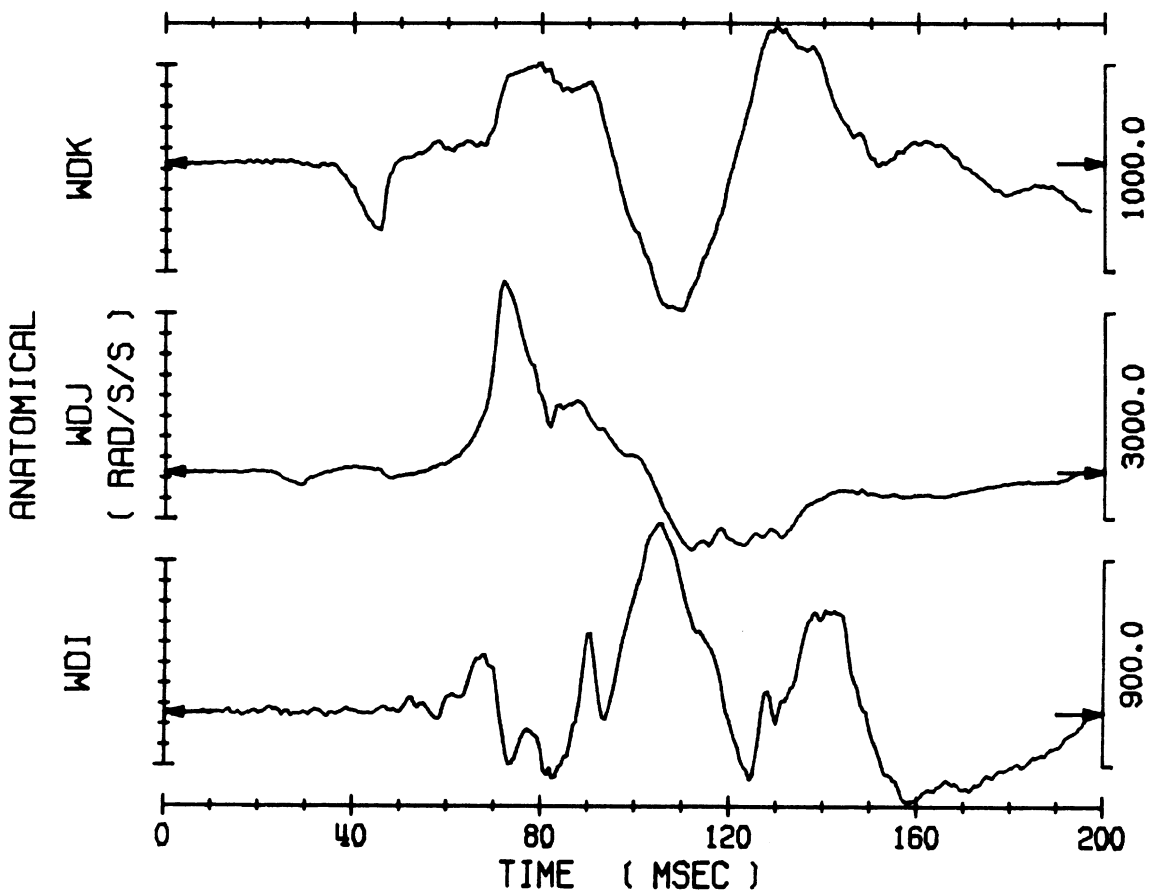


SLED DECELERATION

ANG VELOCITIES



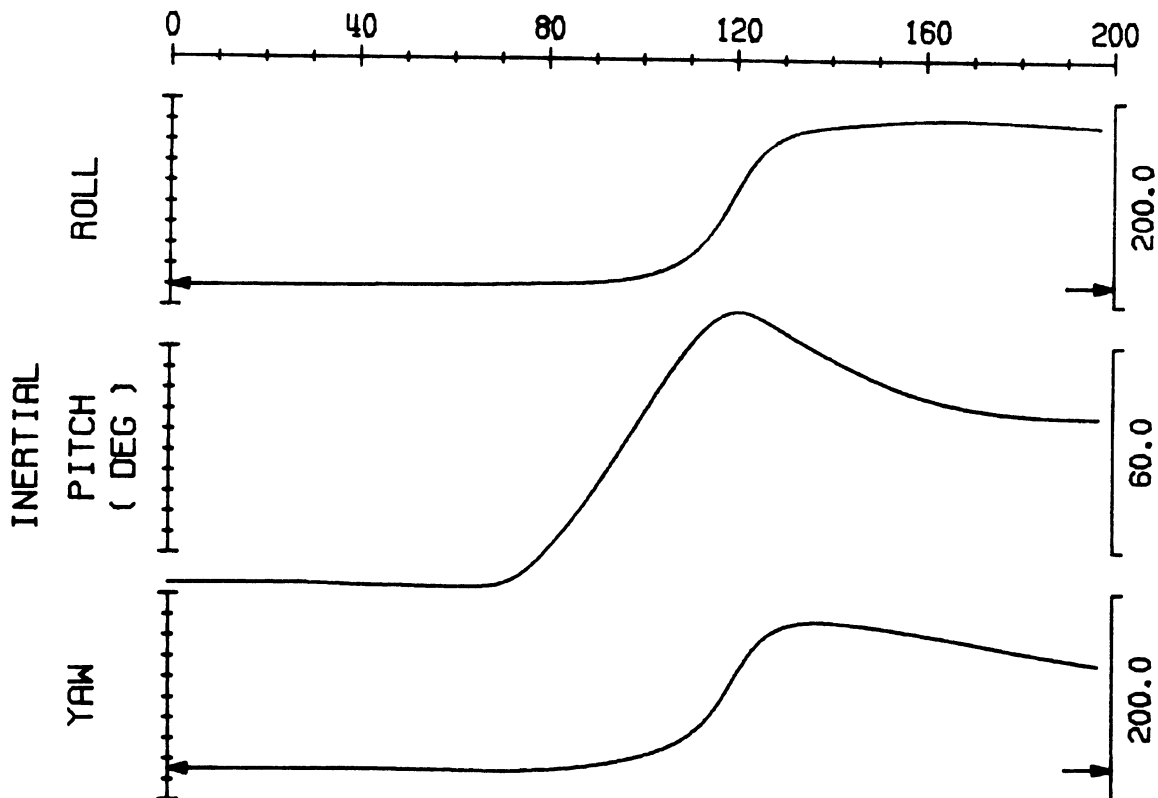
ANG ACCELERATIONS



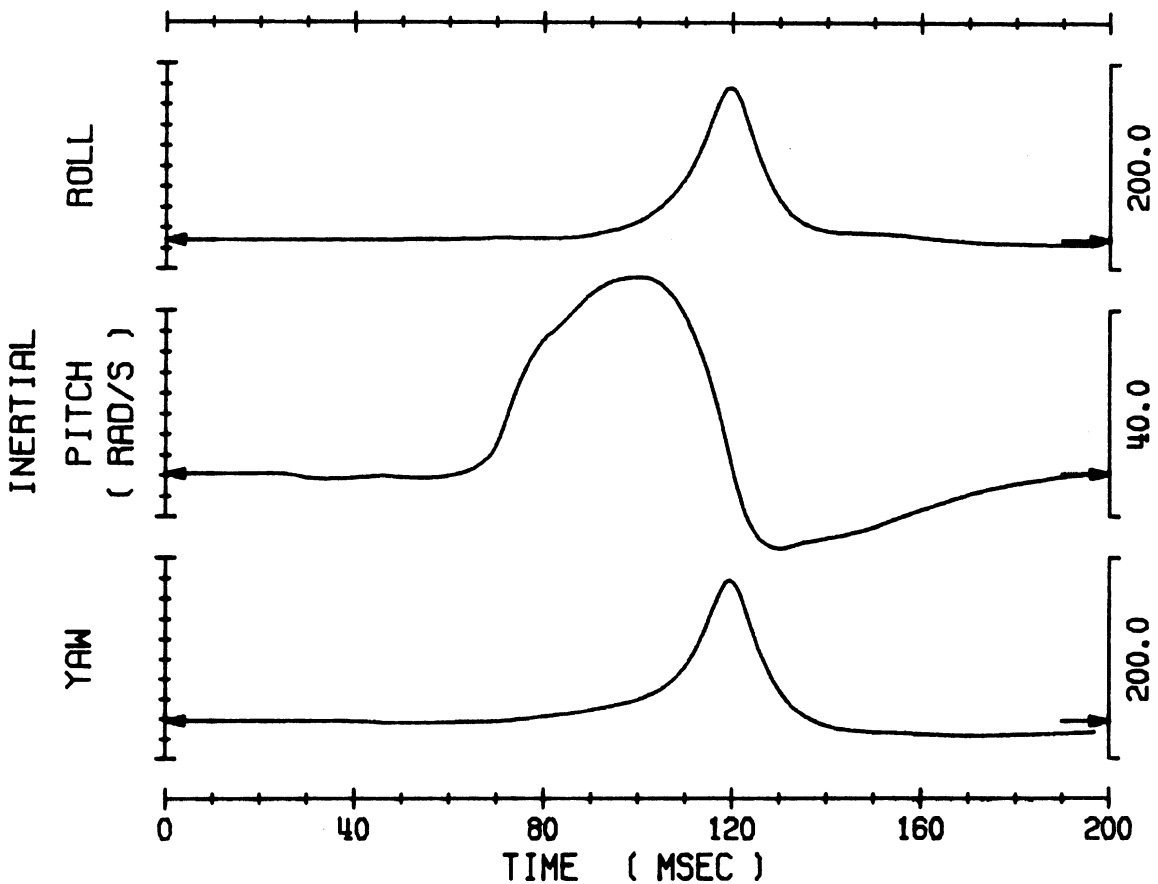
TIME (MSEC)

3-D ANGULAR MOTION

EULER ANGLES



EULER RATES



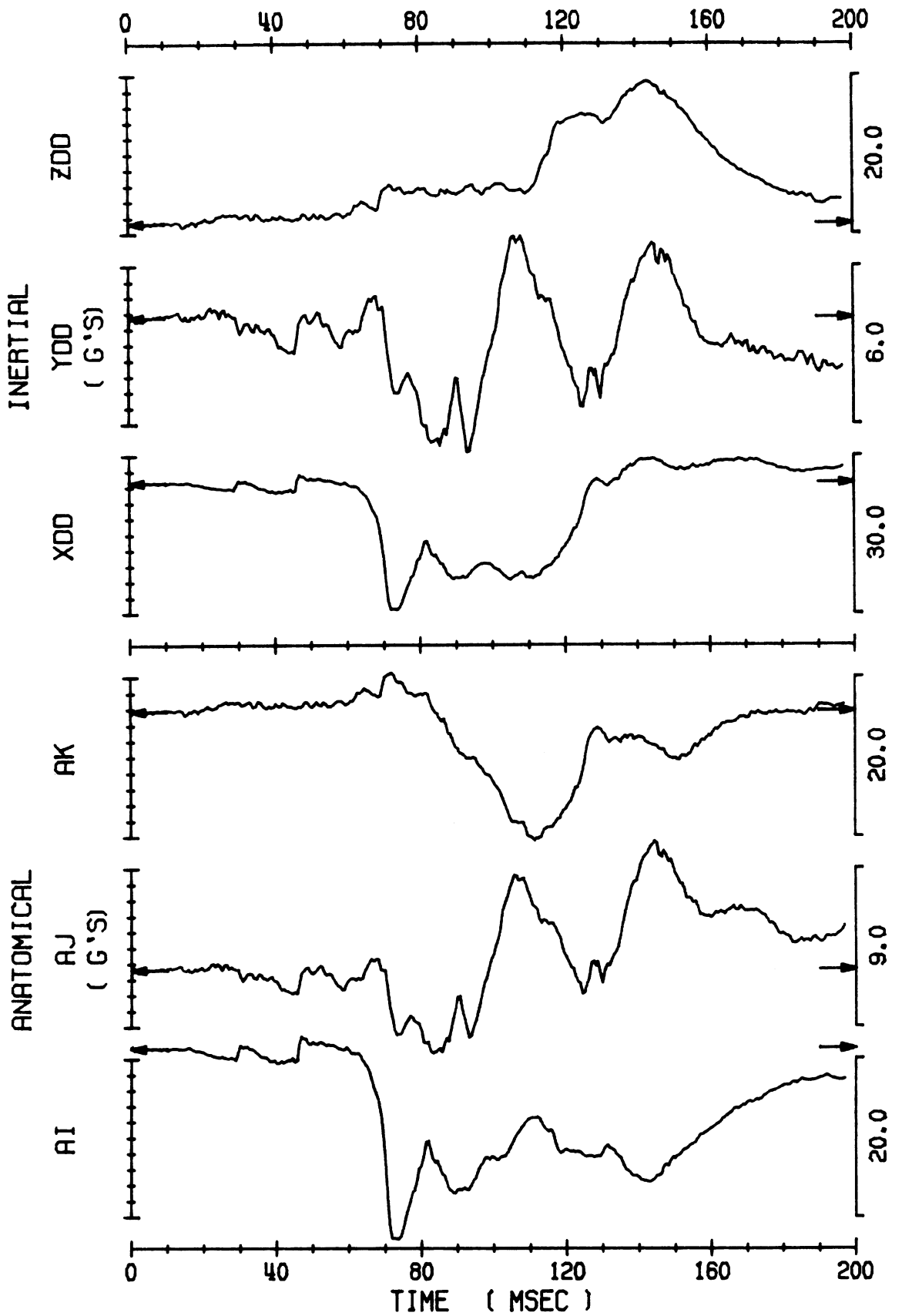
3-D ROTATIONS

FILE: 61

A-875-1: WBR-5

GSI= 116, HIC= 106

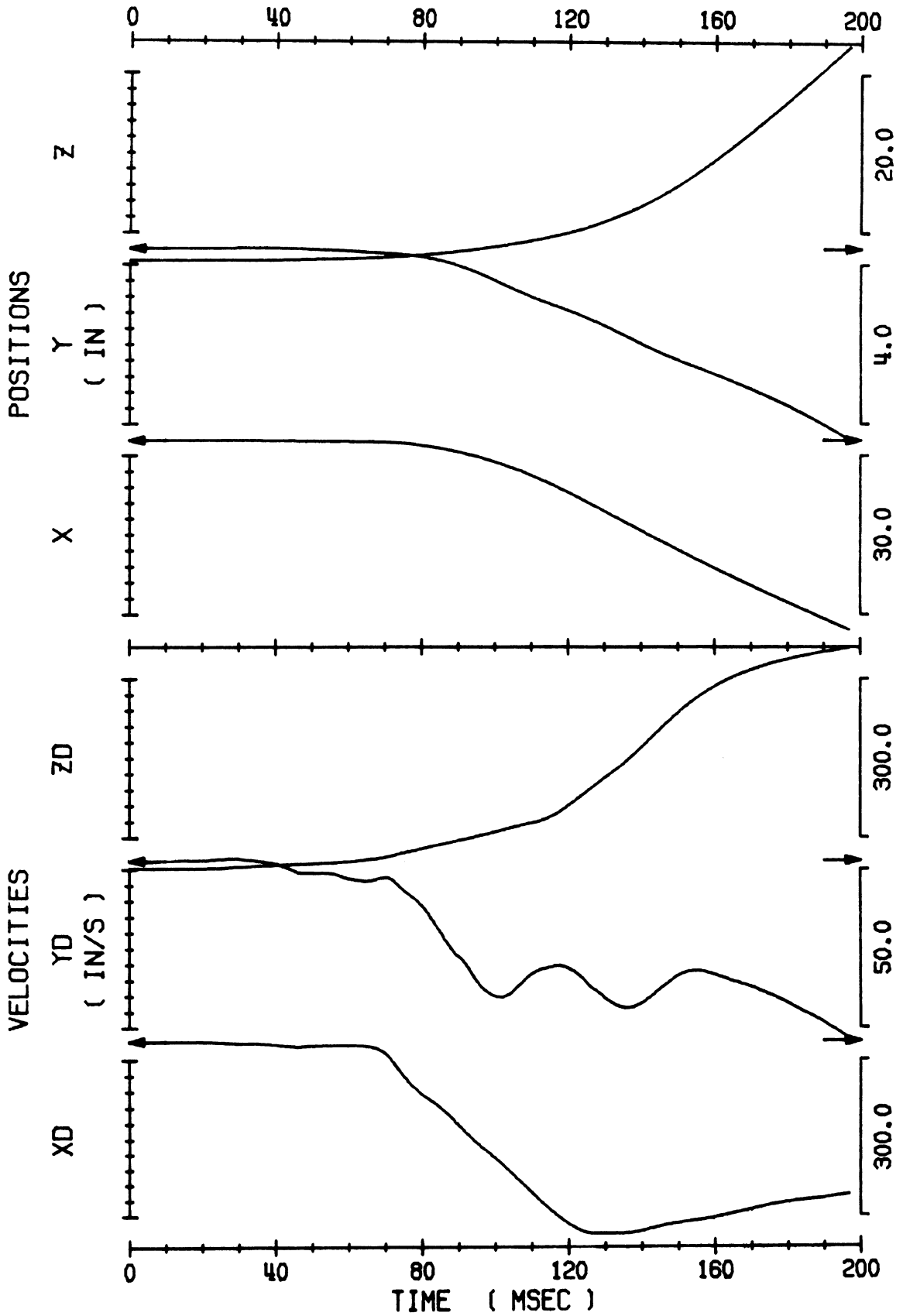
ACC OF: ANATOMICAL CENTER



3-D ACCELERATIONS

INERTIAL MOTION OF: ANATOMICAL CENTER

INERTIAL MOTION OF:



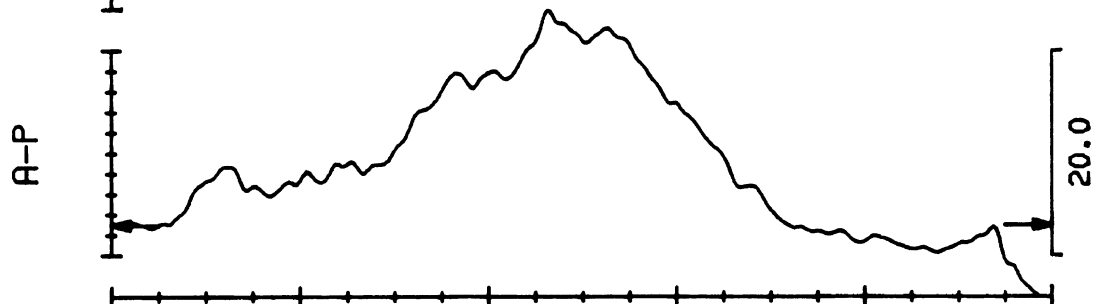
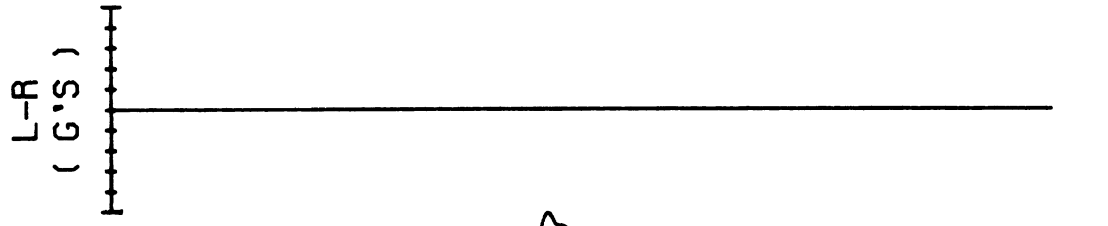
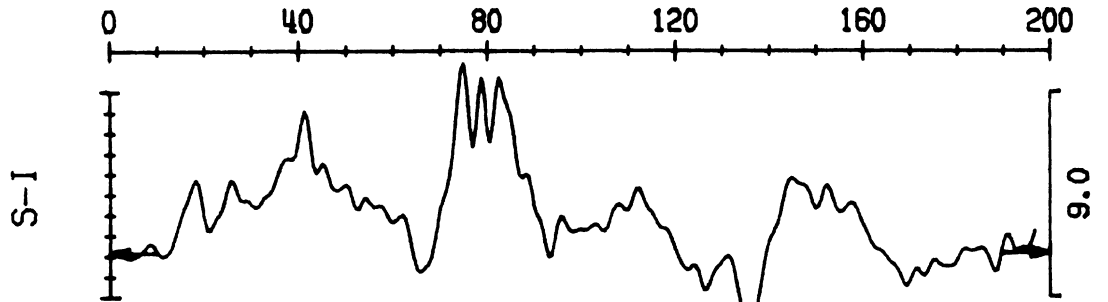
3-D TRANSLATIONS

FILE: 63

A-875-2: WBR-5

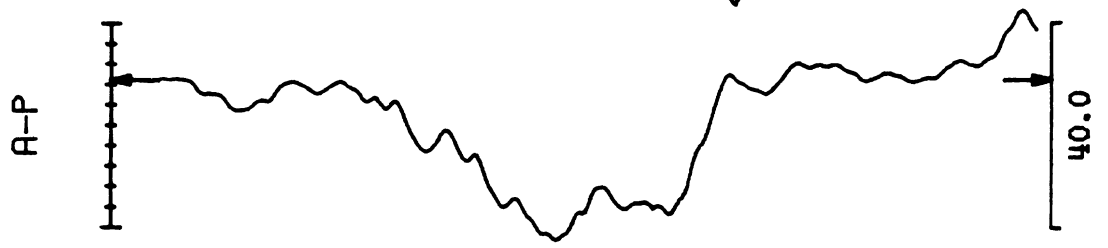
PELVIS

EXTERNAL



THORAX

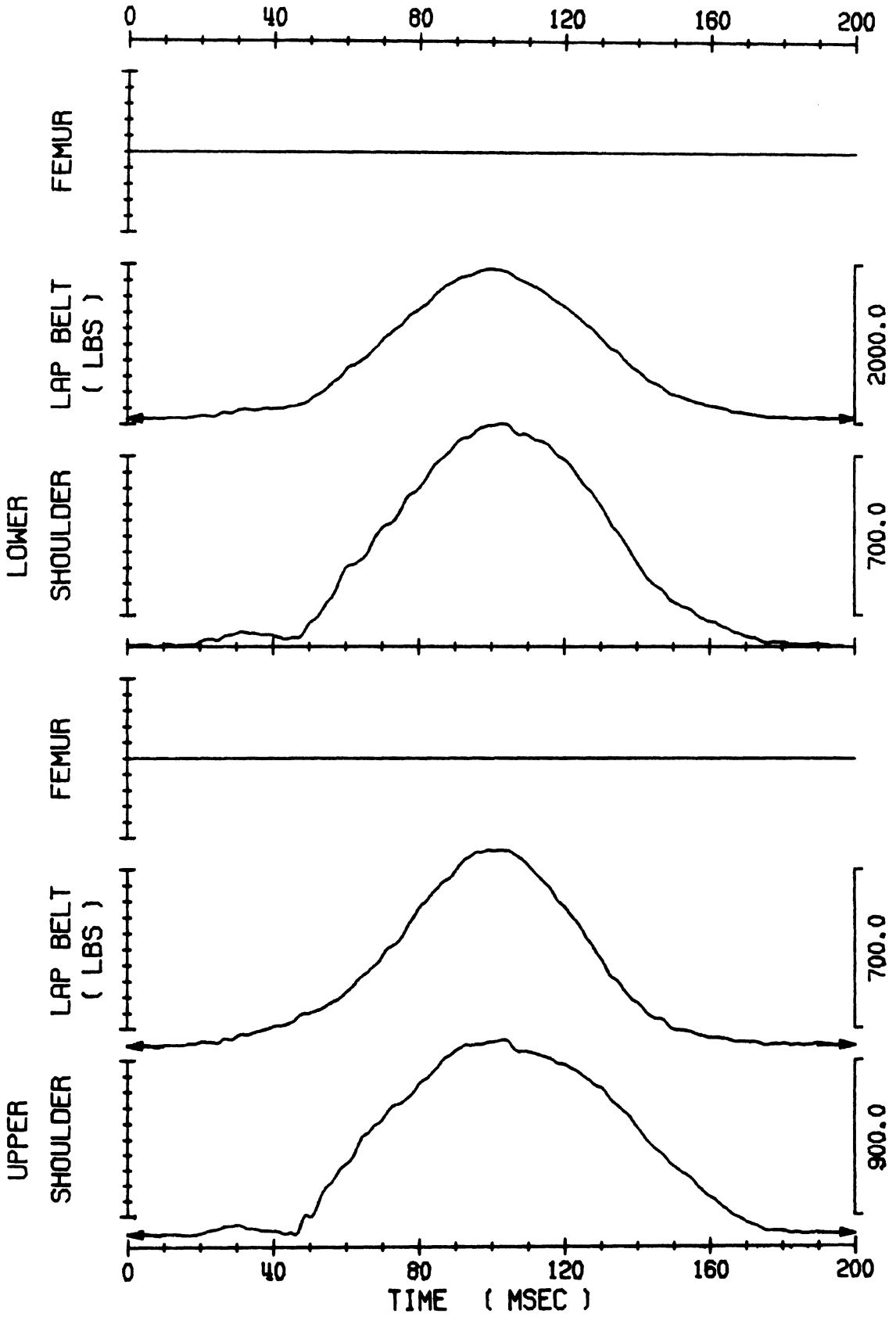
EXTERNAL



0 40 80 120 160 200
TIME (MSEC)

MEASURED ACCELERATIONS

RIGHT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: A-881

SUBJECT: WBR-6

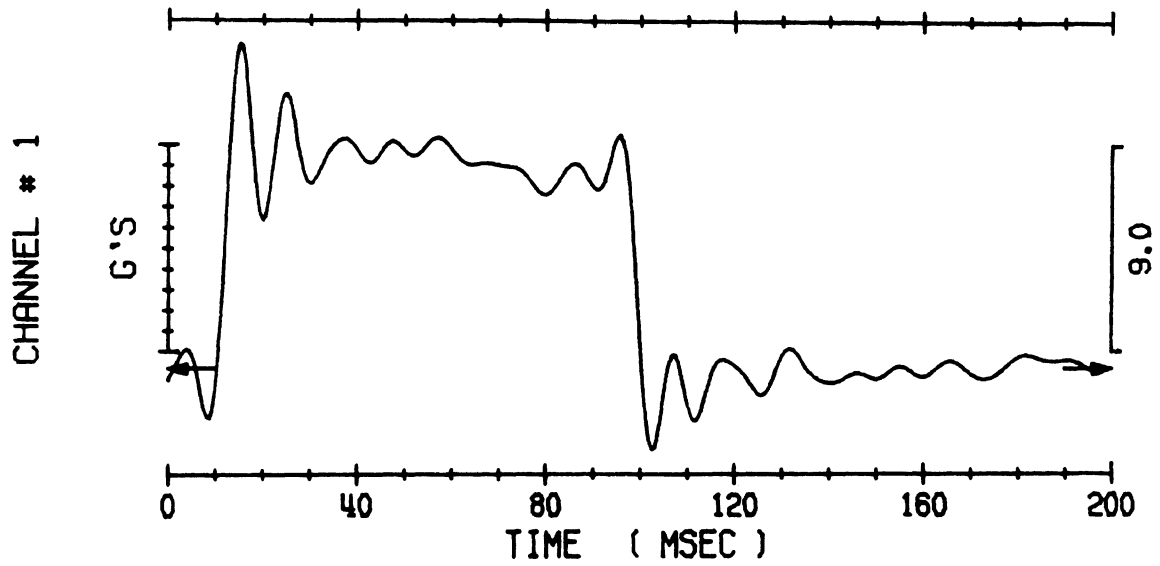
9.3 G-LEVEL
90. MS LONG
17.0 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|------------------------------|---------------|--------------|--------------|---------------|-----------|-----------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: (LBS) @ (MS) | 797. 79.1 | 659. 80.9 | 465. 79.7 | 1094. 80.3 | 0. 0.0 | 0. 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|--|--------------------|----------------|---------------|-----------------|---------------|----------------|---------------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: (G'S) @ (MS) GSI= | 0. 0.0 0 | 0. 0.0 | 0. 0.0 | 0. 0.0 | 0. 0.0 | 0. 0.0 | 0. 0.0 |
| IN PELVIS ACC: (G'S) @ | 0. 0.0 | 0. 0.0 | 0. 0.0 | 0. 0.0 | 0. 0.0 | 0. 0.0 | 0. 0.0 |
| EX THORAX ACC: (G'S) @ GSI= | 32. 82.8 112 | -19. 57.4 | 8. 128.3 | -11. 48.9 | 20. 90.5 | -6. 46.7 | 7. 98.5 |
| EX PELVIS ACC: (G'S) @ | 0. 0.0 | -17. 88.3 | 5. 155.8 | 0. 0.0 | 0. 0.0 | -5. 110.5 | 13. 64.4 |
| | | | | | | | |
| HEAD ANG ACC : (RAD/S/S) @ | 3370. 99.0 | -145. 94.6 | 759. 58.8 | -2720. 102.8 | 1703. 68.7 | -606. 110.0 | 514. 71.9 |
| HEAD ANG VEL : (RAD/S) @ | 53.3 94.0 | 8.8 176.2 | 22.4 118.0 | 4.4 127.3 | 47.5 91.0 | -11.0 166.1 | 10.4 91.4 |
| EULER ANGLES : (DEGREES) @ | | | 67.8 99.6 | | 48.9 101.0 | | 76.0 99.6 |
| | | | | | | | |
| HEAD C.G. ACC: (G'S) @ | 38. 99.0 | -15. 90.1 | 10. 105.7 | -0. 75.0 | 8. 104.3 | -34. 100.5 | -0. 136.4 |
| HEAD C.G. HIC= | 88 | | | | | | |
| HEAD C.G. VEL: (IN/S) @ | 407. 180.9 | -327. 131.8 | 6. 53.5 | -2. 89.3 | 162. 173.3 | 94. 106.8 | 213. 169.6 |
| HEAD C.G. DIS: (IN) @ | | | -2.7 99.6 | | 0.4 94.0 | | 3.4 99.6 |

FILE: 65

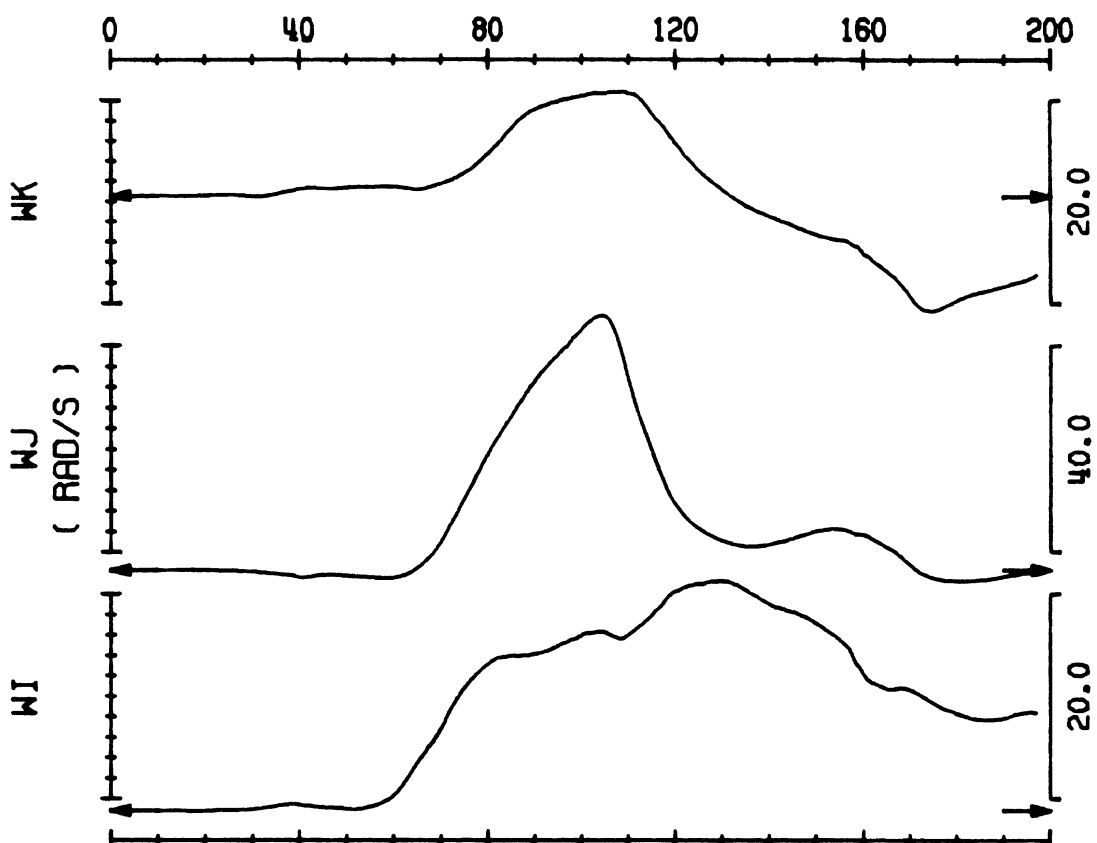
A-881-1: WBR-6



SLED DECELERATION

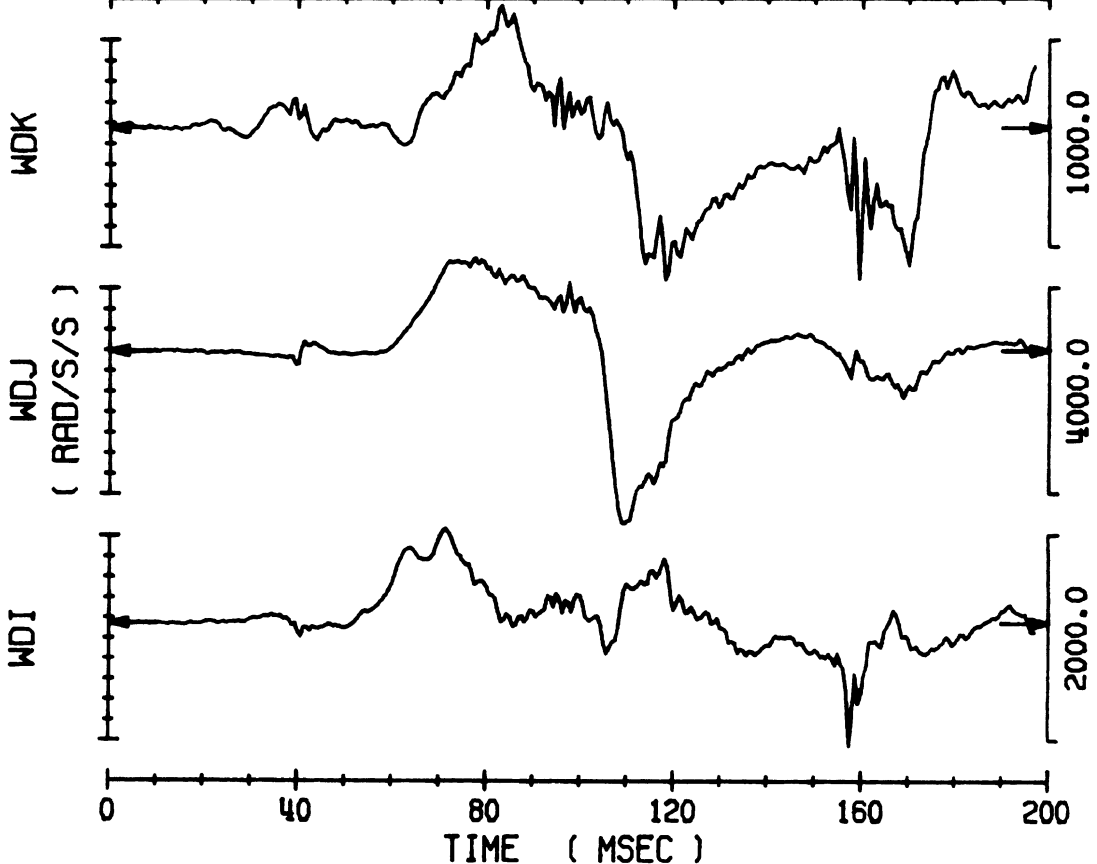
ANG VELOCITIES

ANATOMICAL



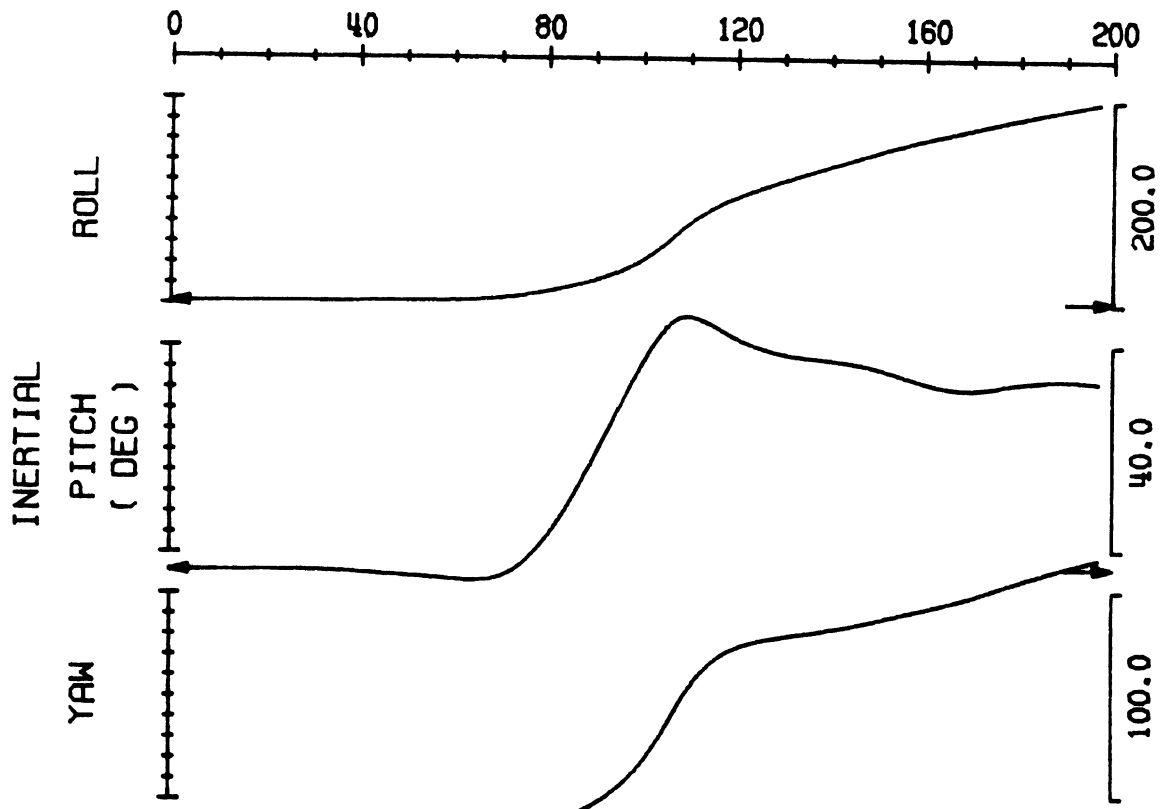
ANG ACCELERATIONS

ANATOMICAL

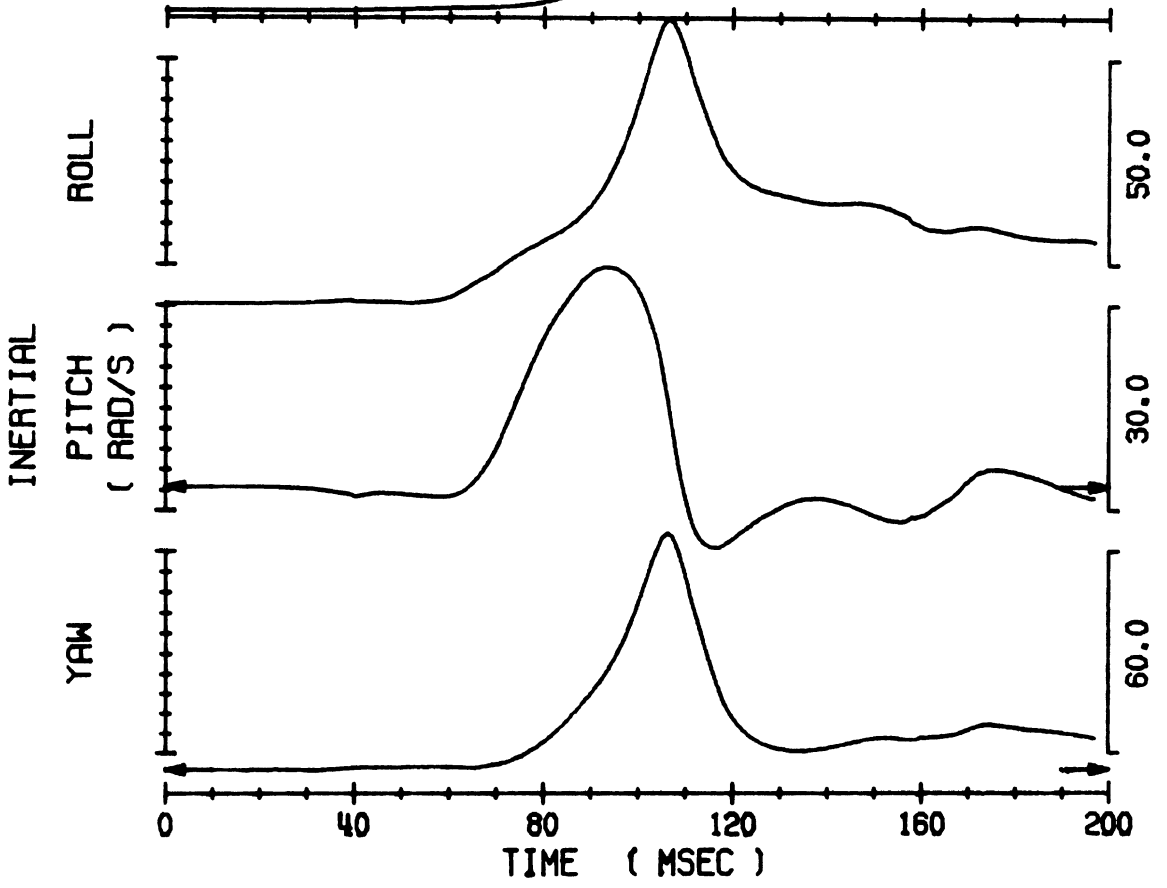


3-D ANGULAR MOTION

EULER ANGLES



EULER RATES

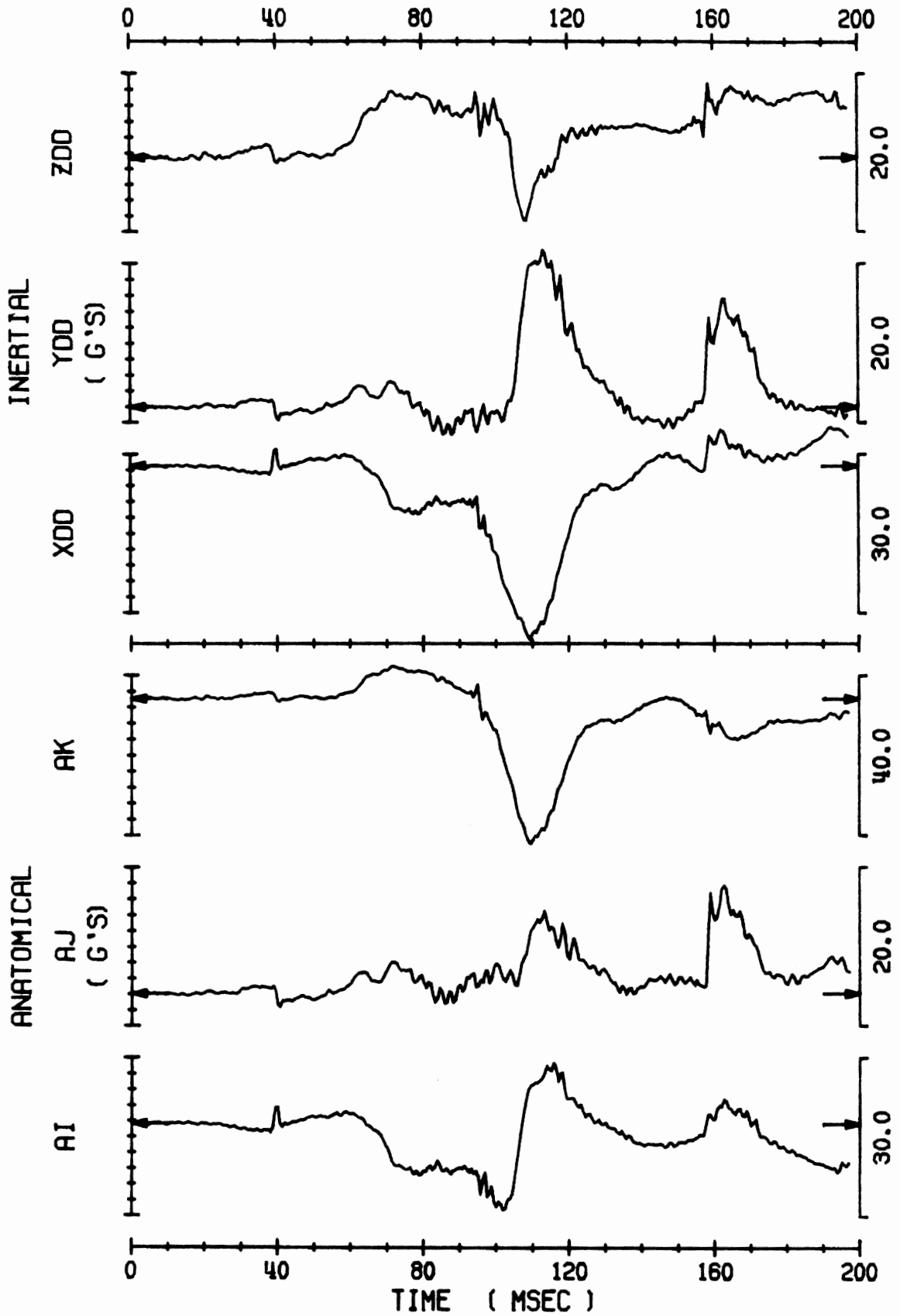


3-D ROTATIONS

ACC OF: ANATOMICAL CENTER GSI= 129, HIC= 88

FILE: 71

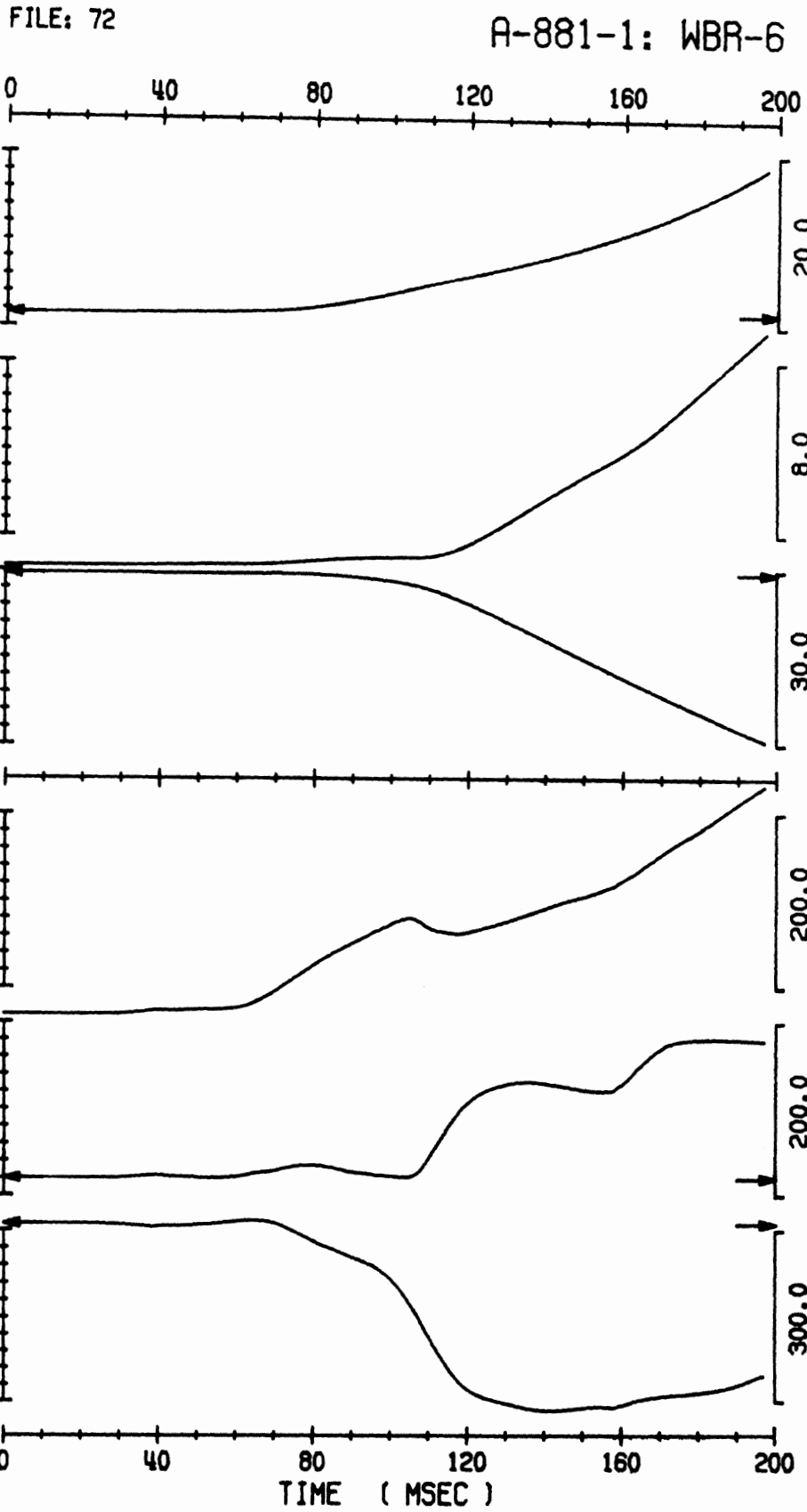
A-881-1: WBR-6



3-D ACCELERATIONS

INERTIAL MOTION OF: ANATOMICAL CENTER

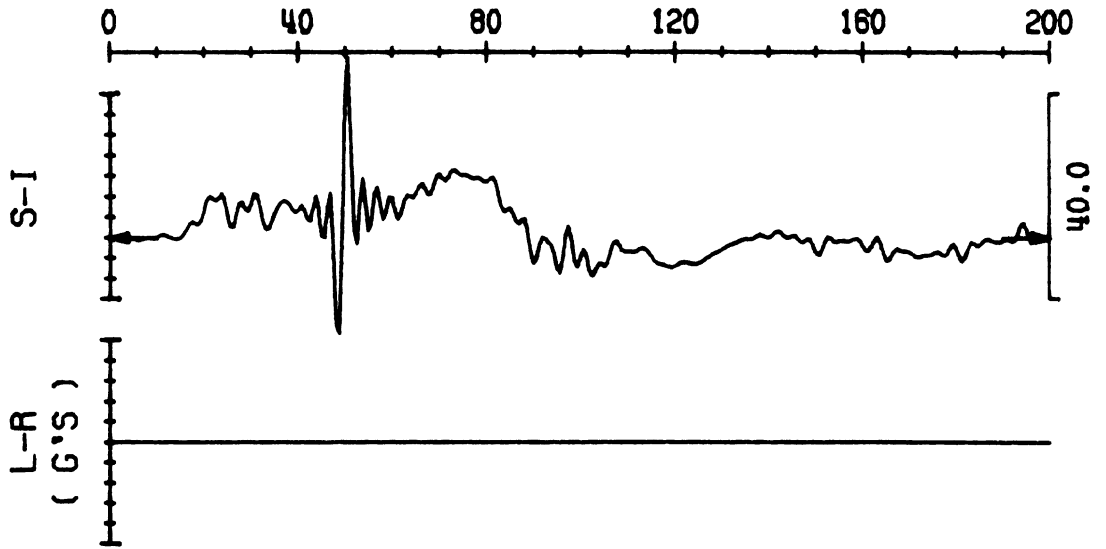
INERTIAL MOTION OF:



3-D TRANSLATIONS

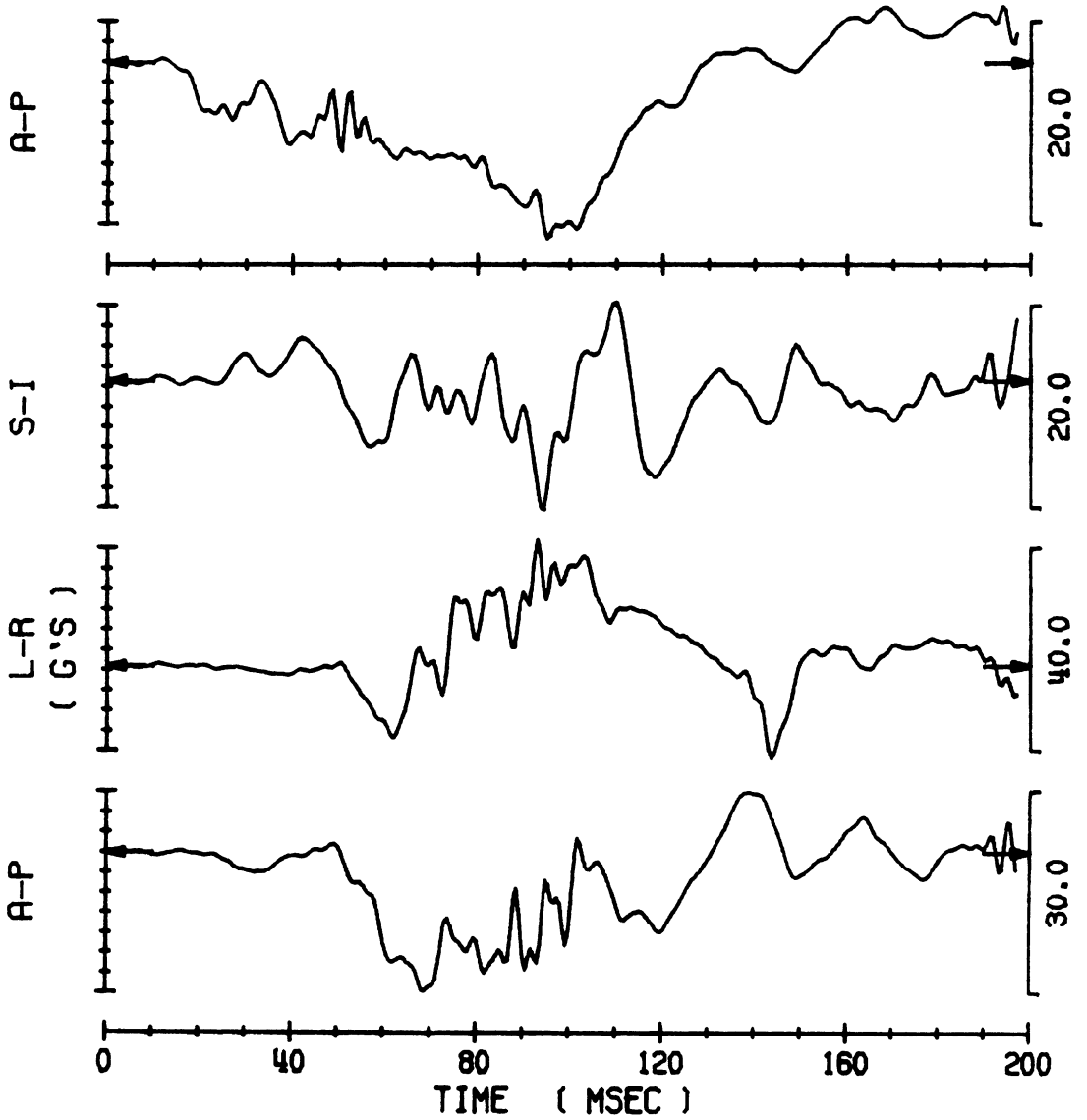
PELVIS

EXTERNAL



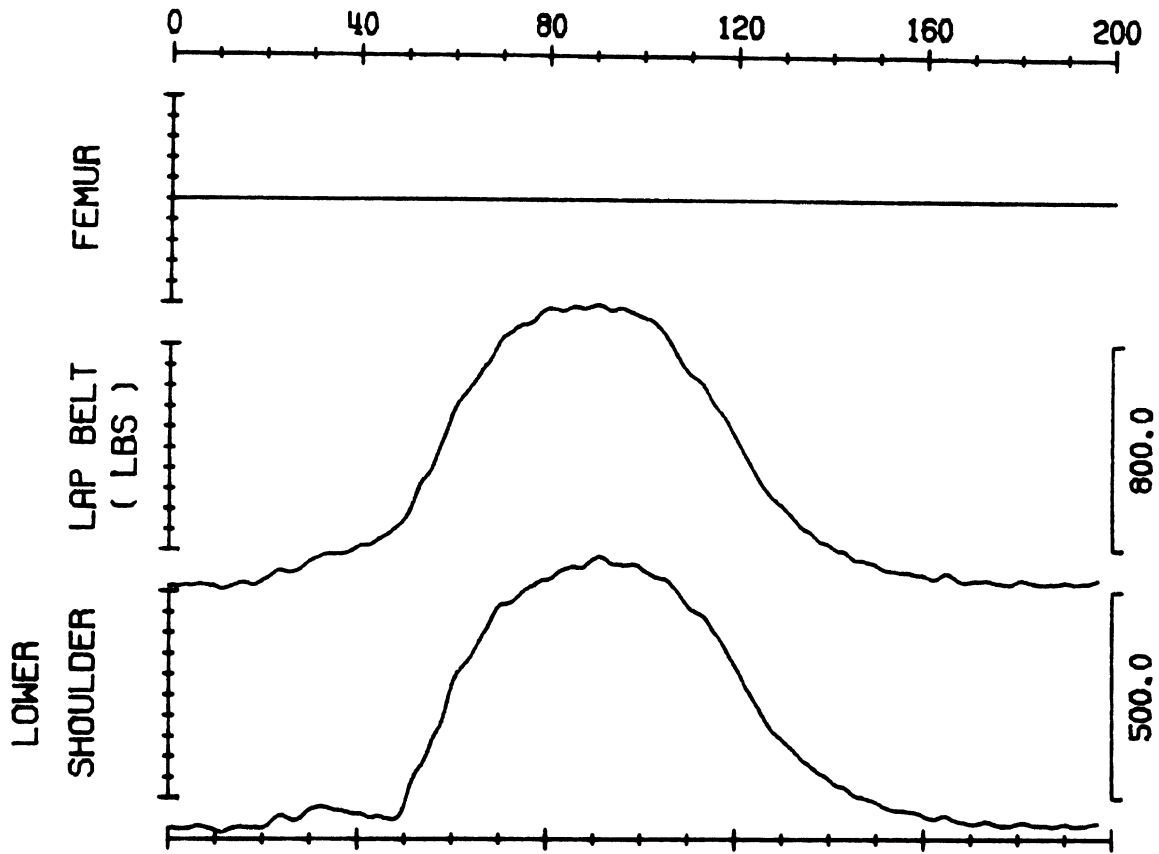
THORAX

EXTERNAL

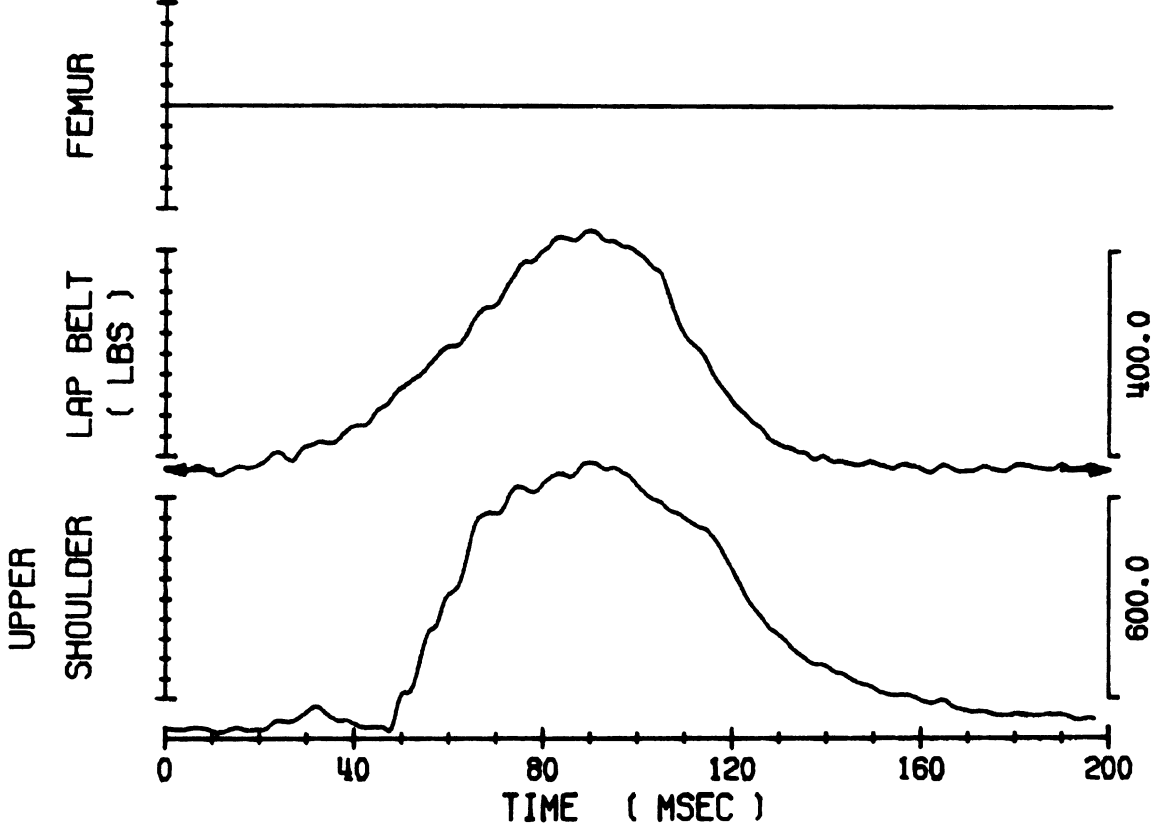


MEASURED ACCELERATIONS

RIGHT SIDE



LEFT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: A-882
=====

SUBJECT: WBR-6

9.5 G-LEVEL
118. MS LONG
23.4 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 910. | 762. | 462. | 1207. | 0. | 0. |
| (LBS) @ (MS) | 86.2 | 86.2 | 86.2 | 86.2 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|------|-------|------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 32. | -18. | 4. | -12. | 24. | -14. | 6. |
| (G'S) @ | 76.2 | 108.6 | 131.8 | 52.2 | 77.3 | 113.8 | 99.4 |
| GSI= | 162 | | | | | | |
| EX PELVIS ACC: | 0. | -21. | 3. | 0. | 0. | -9. | 10. |
| (G'S) @ | 0.0 | 84.5 | 150.6 | 0.0 | 0.0 | 85.6 | 66.3 |

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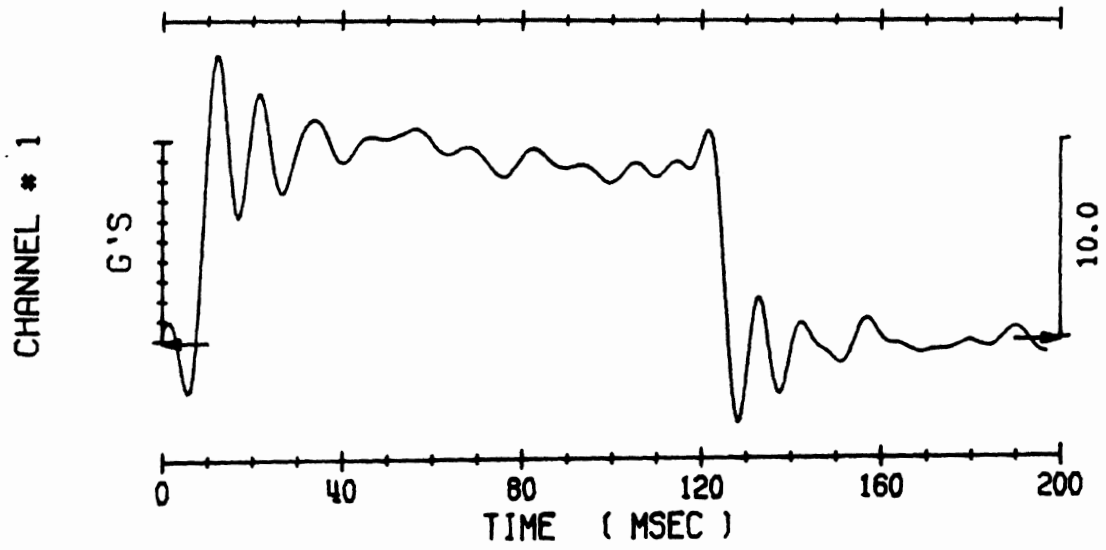
| | | | | | | | |
|----------------|--------|--------|-------|--------|-------|--------|-------|
| HEAD ANG ACC : | 16964. | -6101. | 1595. | -2956. | 2420. | -7882. | 2530. |
| (RAD/S/S) @ | 145.6 | 144.4 | 149.9 | 108.6 | 149.9 | 144.6 | 149.9 |
| HEAD ANG VEL : | 59.5 | -2.6 | 20.9 | 0.0 | 55.3 | -25.7 | 2.1 |
| (RAD/S) @ | 97.5 | 169.7 | 120.9 | 128.0 | 96.4 | 149.5 | 104.7 |
| EULER ANGLES : | | | 69.1 | | 56.6 | | 93.0 |
| (DEGREES) @ | | | 104.9 | | 106.7 | | 104.9 |

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| | | | | | | | |
|----------------|-------|-------|-------|-------|-------|-------|-------|
| HEAD C.G. ACC: | 116. | -21. | 10. | -11. | 56. | -40. | 22. |
| (G'S) @ | 147.5 | 92.9 | 111.0 | 164.4 | 149.3 | 106.3 | 144.0 |
| HEAD C.G. HIC= | 274 | | | | | | |
| HEAD C.G. VEL: | 654. | -373. | -1. | 2. | 328. | 5. | 314. |
| (IN/S) @ | 182.5 | 167.0 | 37.4 | 37.4 | 161.1 | 37.4 | 160.0 |
| HEAD C.G. DIS: | | | -5.3 | | 2.5 | | 4.5 |
| (IN) @ | | | 112.4 | | 112.4 | | 112.4 |

FILE: 75

A-882-1: WBR-6

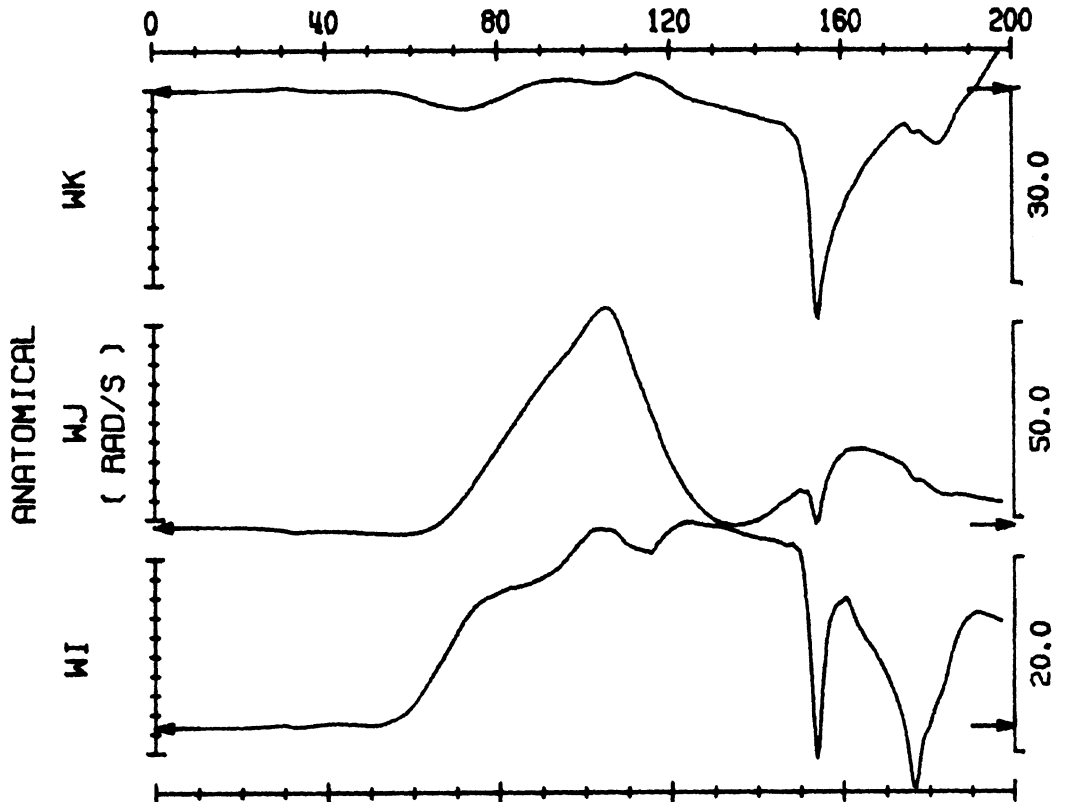


SLED DECELERATION

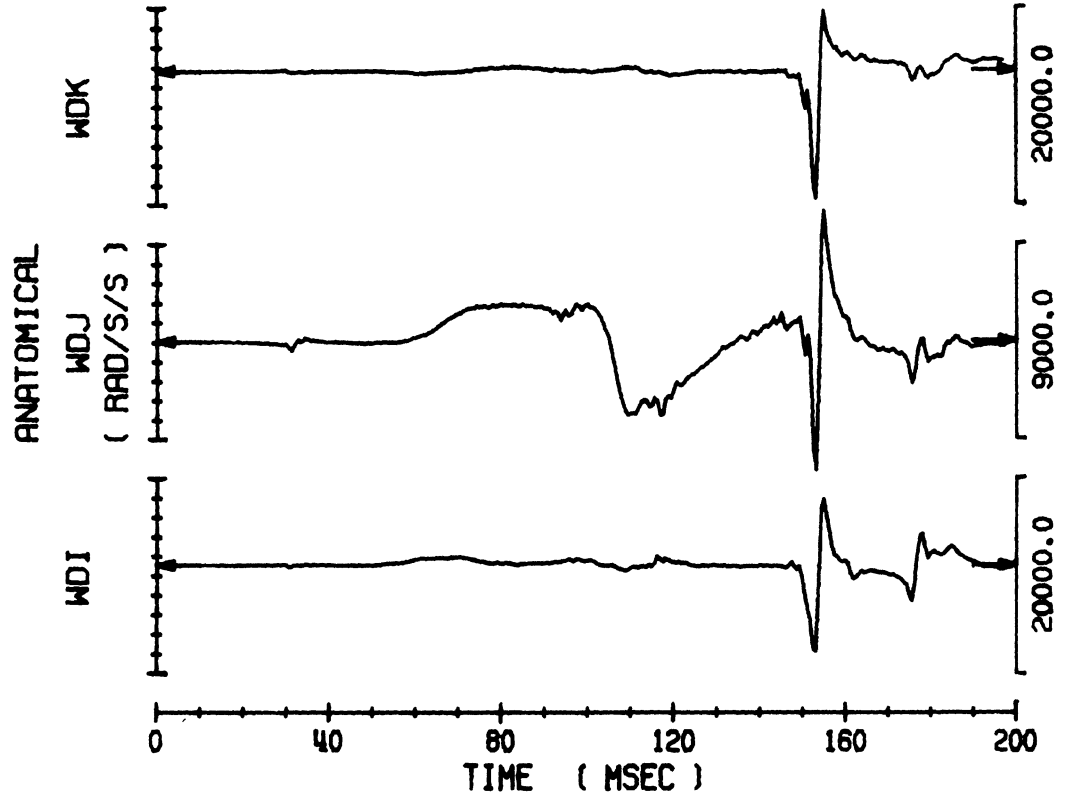
FILE: 79

A-882-1: WBR-6

ANG VELOCITIES



ANG ACCELERATIONS



3-D ANGULAR MOTION

EULER RATES

EULER ANGLES

INERTIAL

INERTIAL

YAW

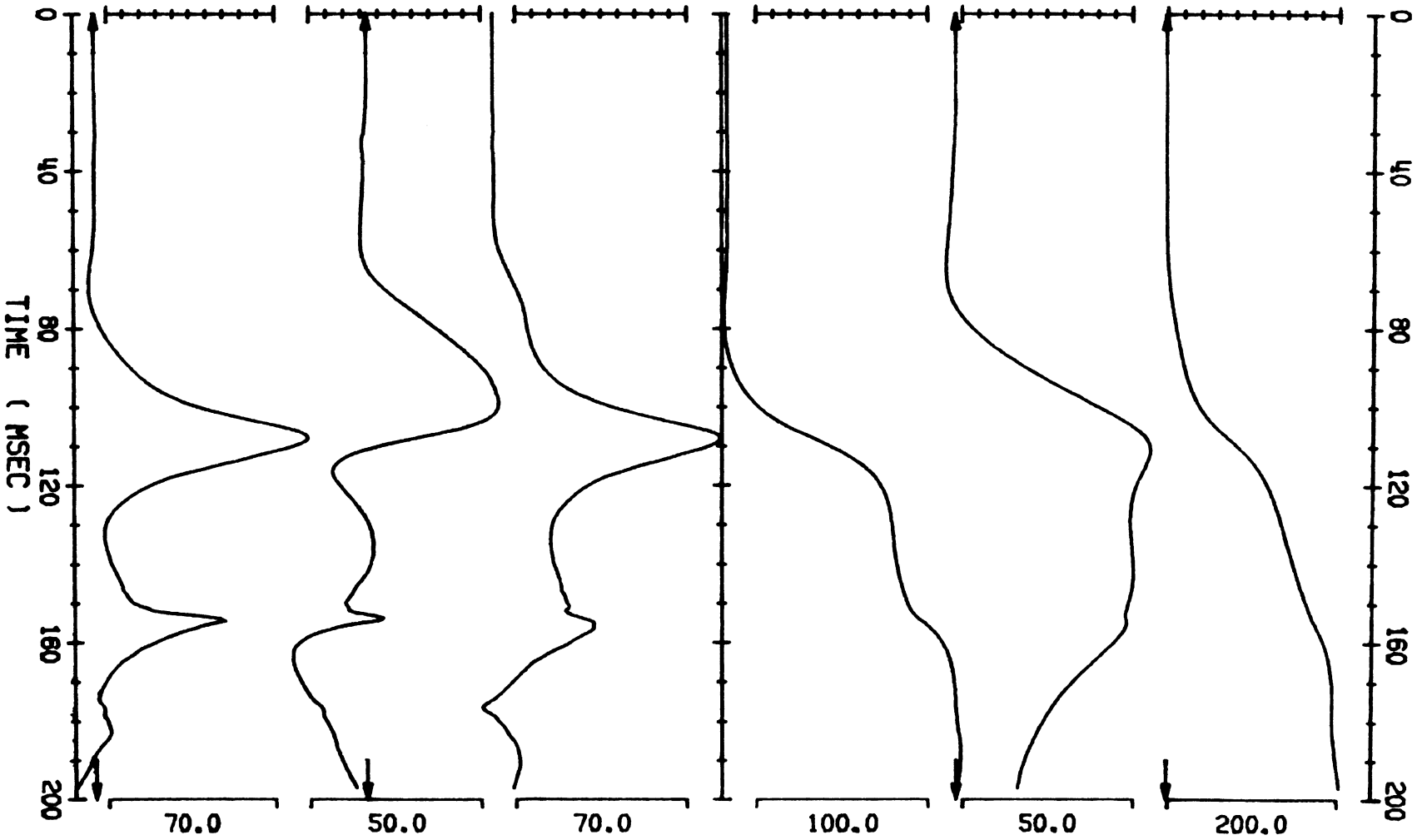
PITCH
(RAD/S)

ROLL

YAW

PITCH
(DEG)

ROLL



FILE: 80

A-882-1: MBR-6

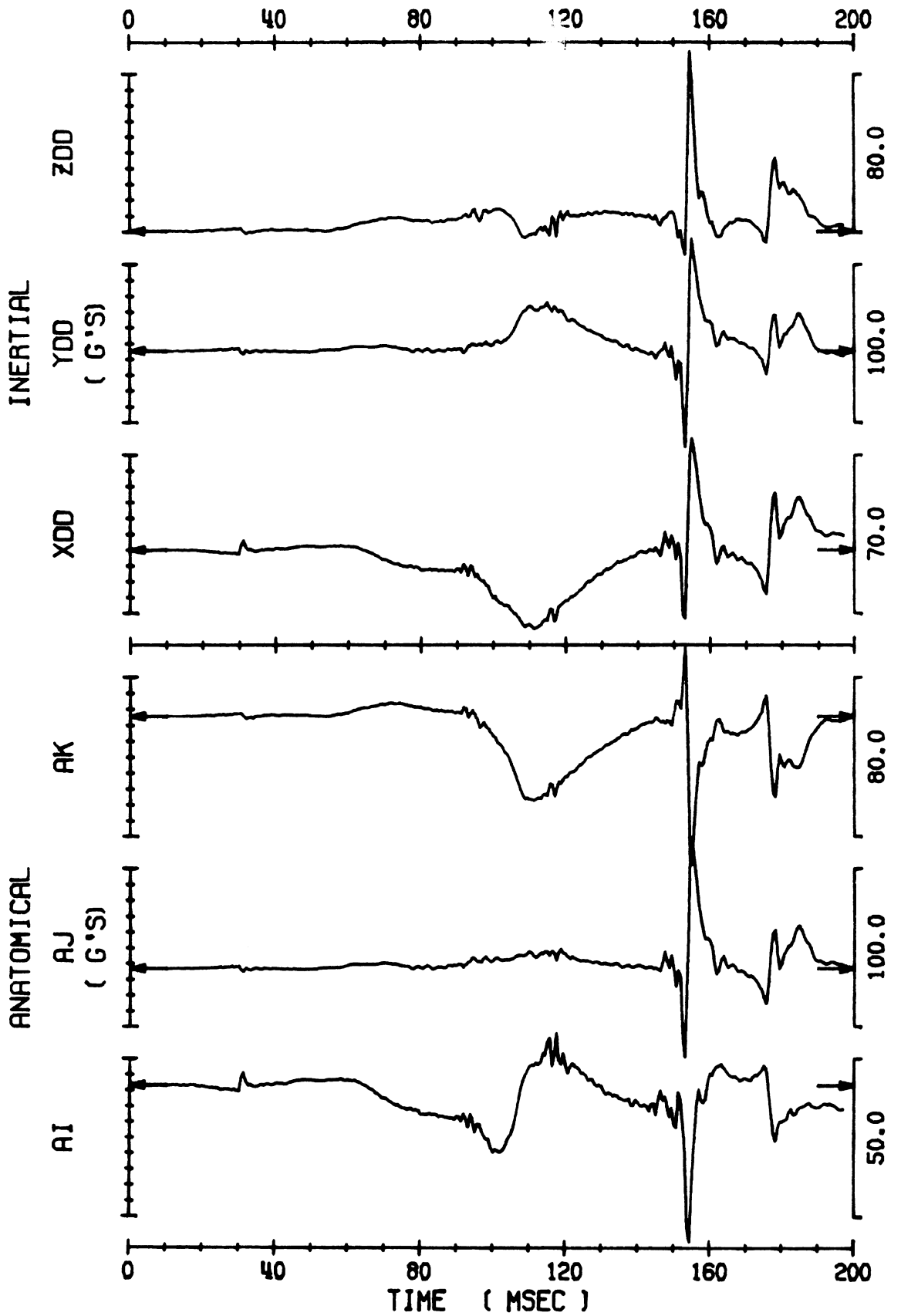
3-D ROTATIONS

FILE: 81

A-882-1: WBR-6

GSI= 621, HIC= 274

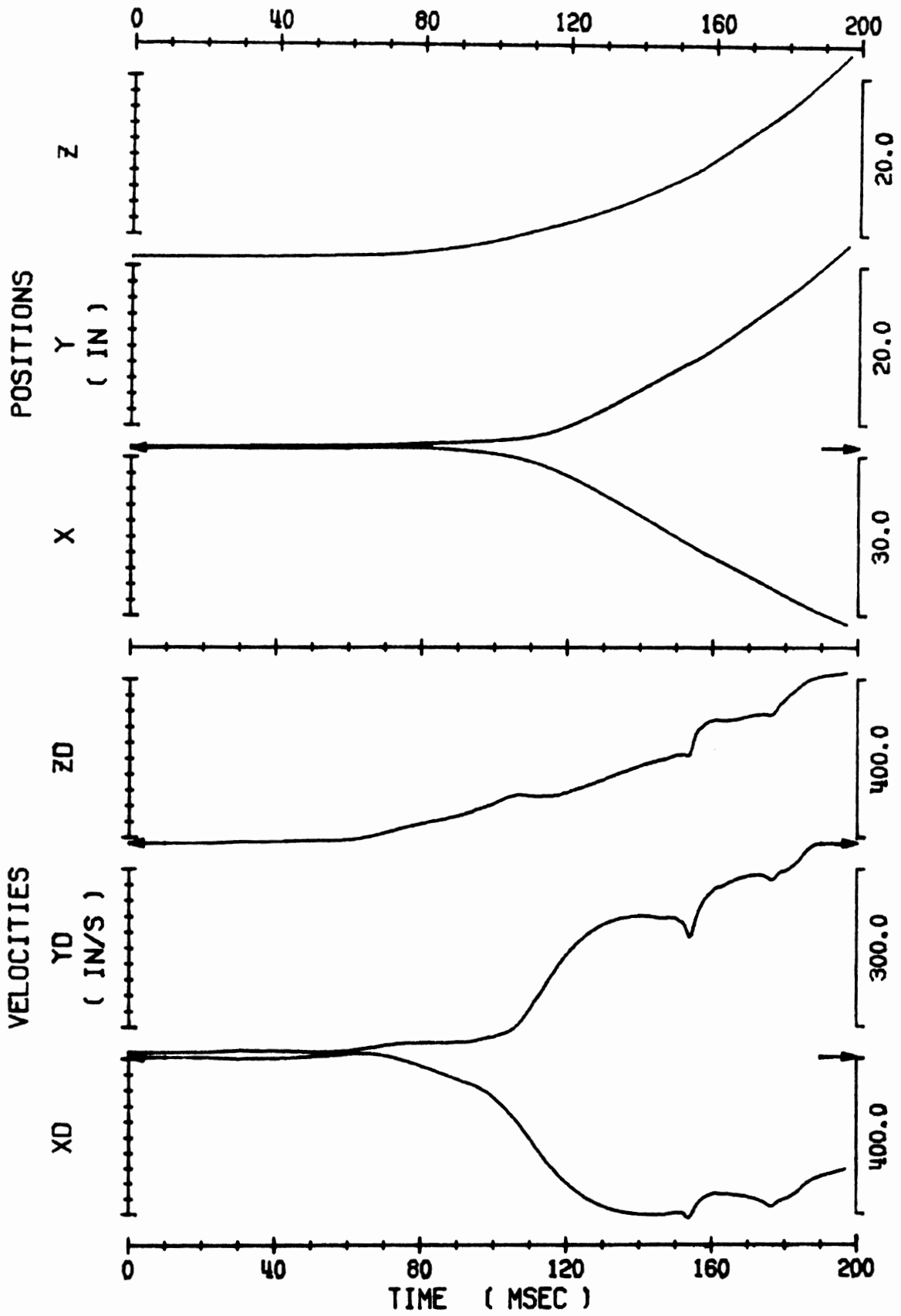
ACC OF: ANATOMICAL CENTER



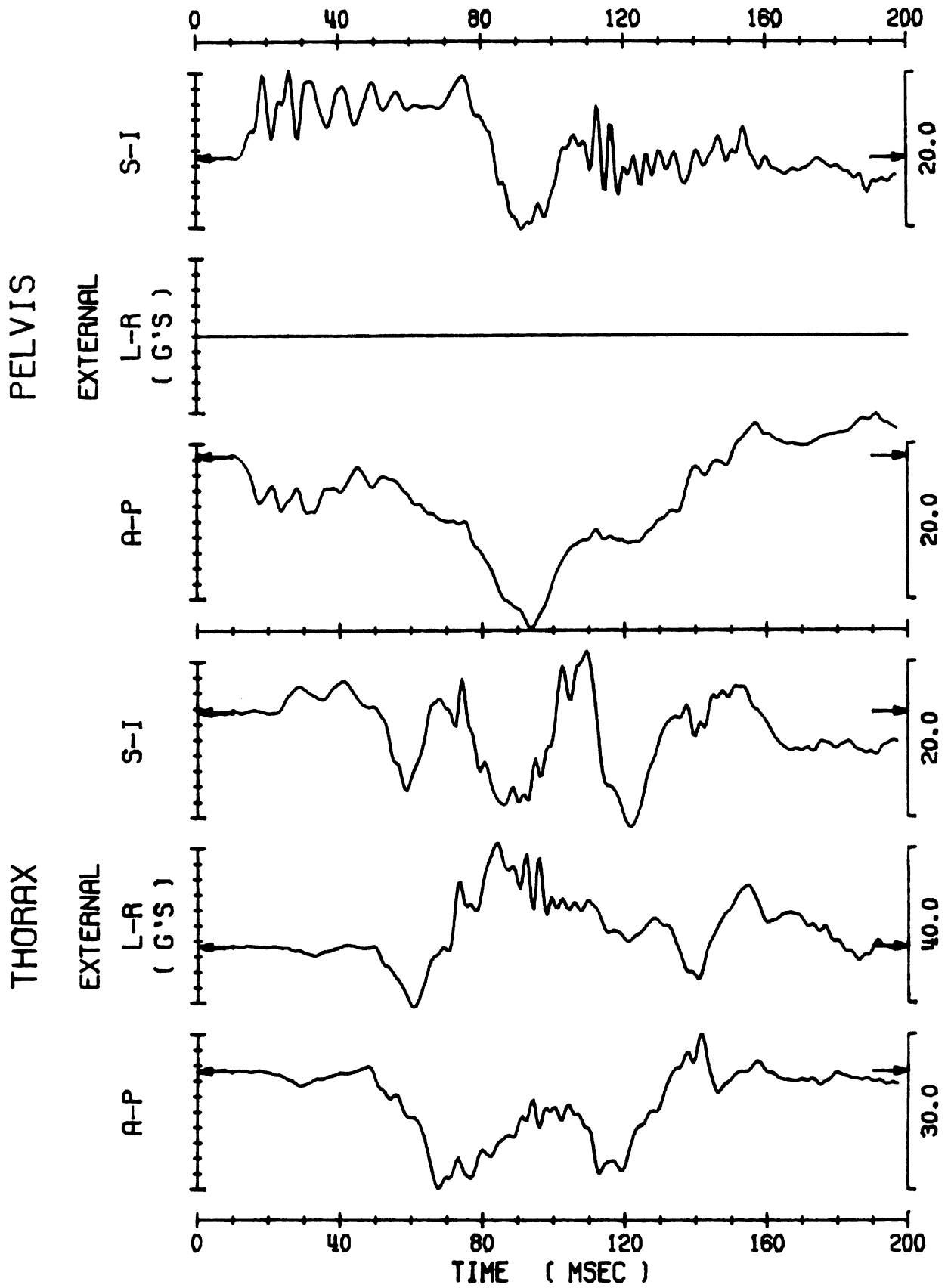
3-D ACCELERATIONS

ANATOMICAL CENTER

INERTIAL MOTION OF:

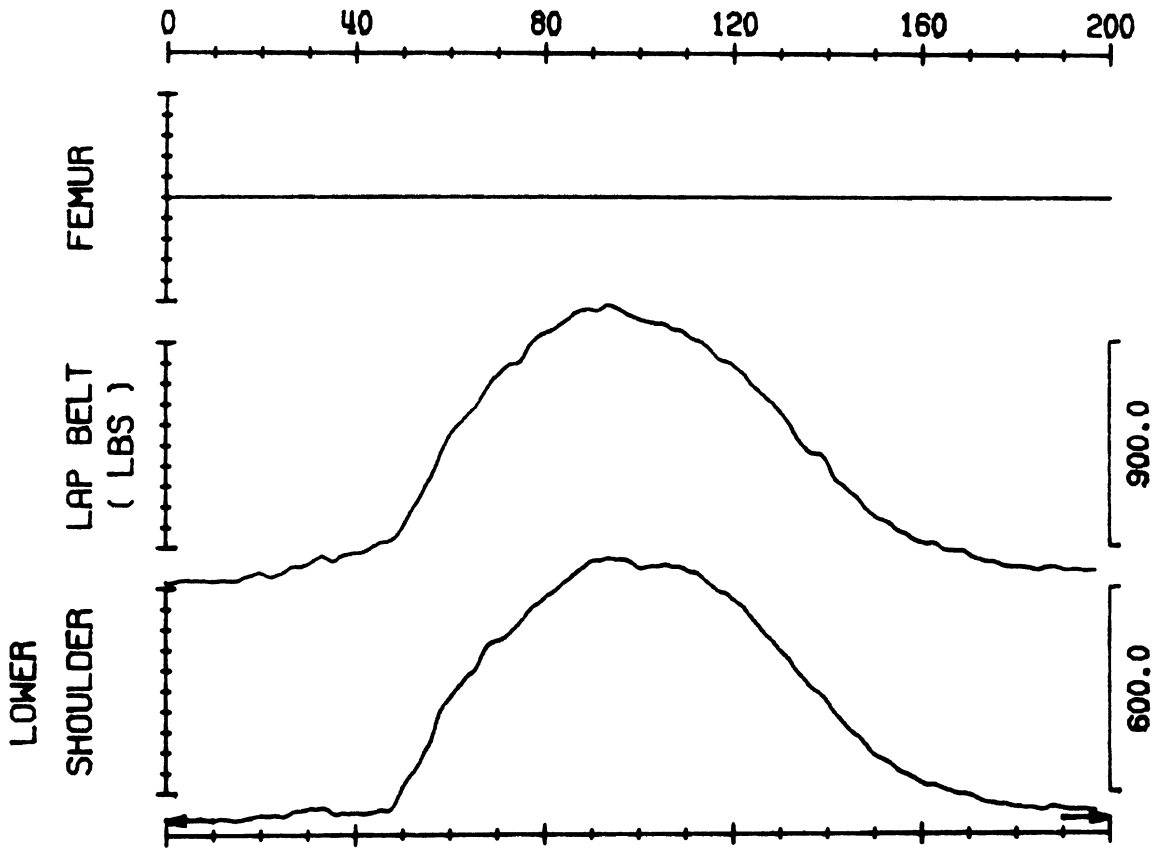


3-D TRANSLATIONS

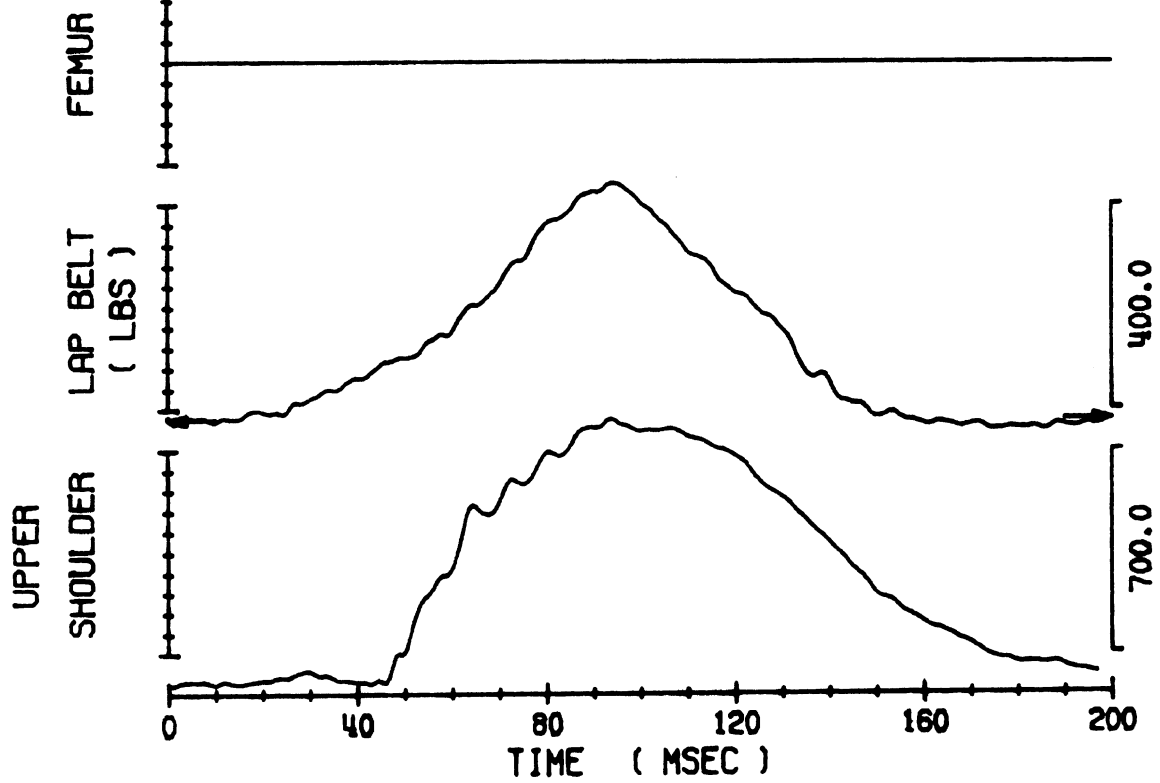


MEASURED ACCELERATIONS

RIGHT SIDE



LEFT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: A-925

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=====

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SUBJECT: WBR-7

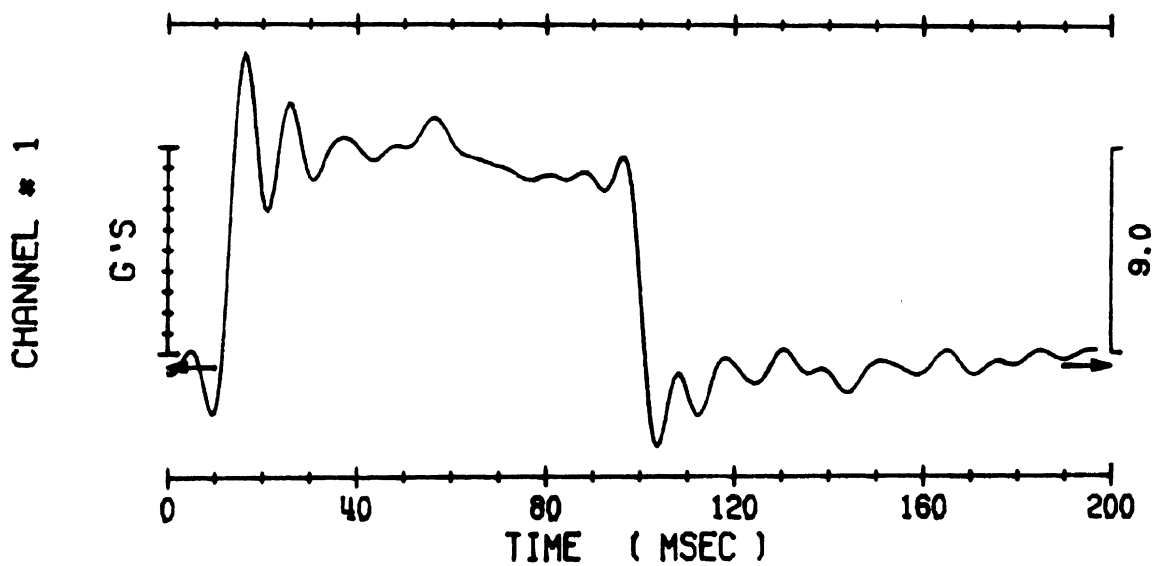
9.3 G-LEVEL
90. MS LONG
17.0 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 984. | 665. | 765. | 1487. | 0. | 0. |
| (LBS) @ (MS) | 88.5 | 89.2 | 89.2 | 86.0 | 0.0 | 0.0 |

| | RESULTANT | (A-P) | | (L-R) | | (S-I) | |
|----------------|-----------|-------|-------|--------|-------|-------|-------|
| | PEAK | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 0. | 0. | 0. | 0. | 0. | -14. | 14. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 54.9 | 62.7 |
| GSI= | 0 | | | | | | |
| EX PELVIS ACC: | 0. | -12. | 7. | 0. | 0. | -2. | 12. |
| (G'S) @ | 0.0 | 82.8 | 174.7 | 0.0 | 0.0 | 127.4 | 74.8 |
| | | | | | | | |
| HEAD ANG ACC : | 2149. | -211. | 578. | -1540. | 1546. | -742. | 1060. |
| (RAD/S/S) @ | 64.0 | 100.5 | 75.1 | 91.3 | 73.2 | 94.9 | 65.6 |
| HEAD ANG VEL : | 42.4 | -1.8 | 12.6 | -6.2 | 38.0 | -6.0 | 16.6 |
| (RAD/S) @ | 81.5 | 58.3 | 119.9 | 174.4 | 81.3 | 175.6 | 80.3 |
| EULER ANGLES : | | | 80.9 | | 63.4 | | 110.3 |
| (DEGREES) @ | | | 134.7 | | 119.4 | | 174.5 |
| | | | | | | | |
| HEAD C.G. ACC: | 26. | -17. | -6. | 3. | 13. | -23. | 2. |
| (G'S) @ | 89.0 | 75.8 | 89.9 | 144.1 | 163.9 | 88.0 | 145.9 |
| HEAD C.G. HIC= | 76 | | | | | | |
| HEAD C.G. VEL: | 368. | -356. | -10. | -0. | 79. | -44. | 185. |
| (IN/S) @ | 128.3 | 122.9 | 31.5 | 30.9 | 175.4 | 93.8 | 174.4 |
| HEAD C.G. DIS: | | | -9.4 | | 0.8 | | -0.5 |
| (IN) @ | | | 108.4 | | 108.4 | | 106.7 |

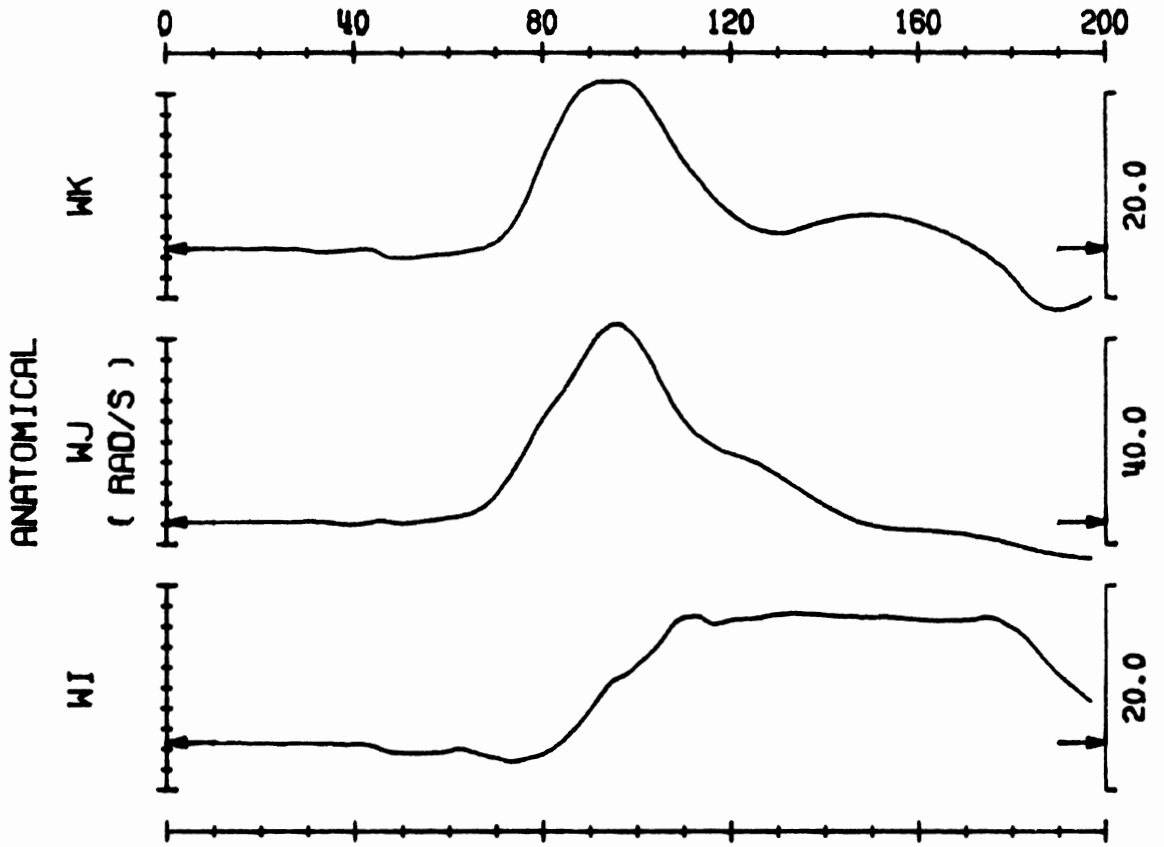
FILE: 93

A-925-2: WBR-7

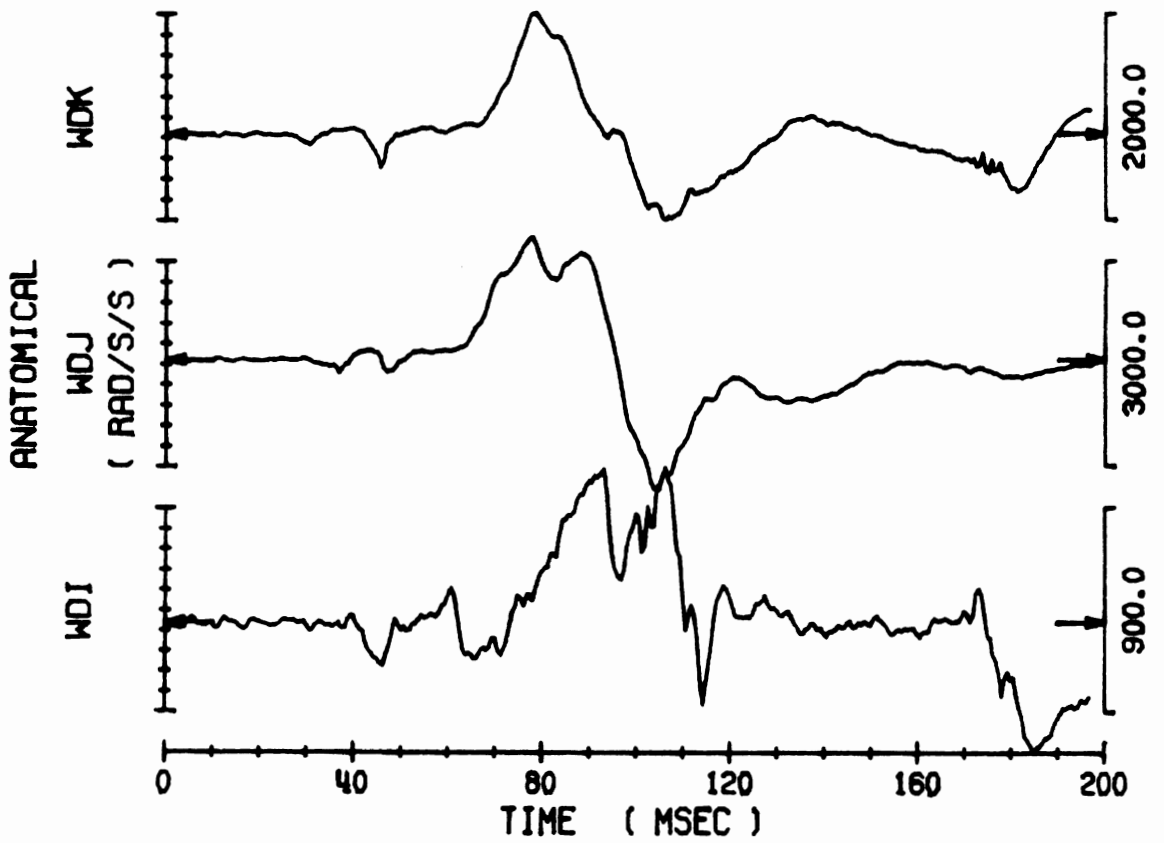


SLED DECELERATION

ANG VELOCITIES

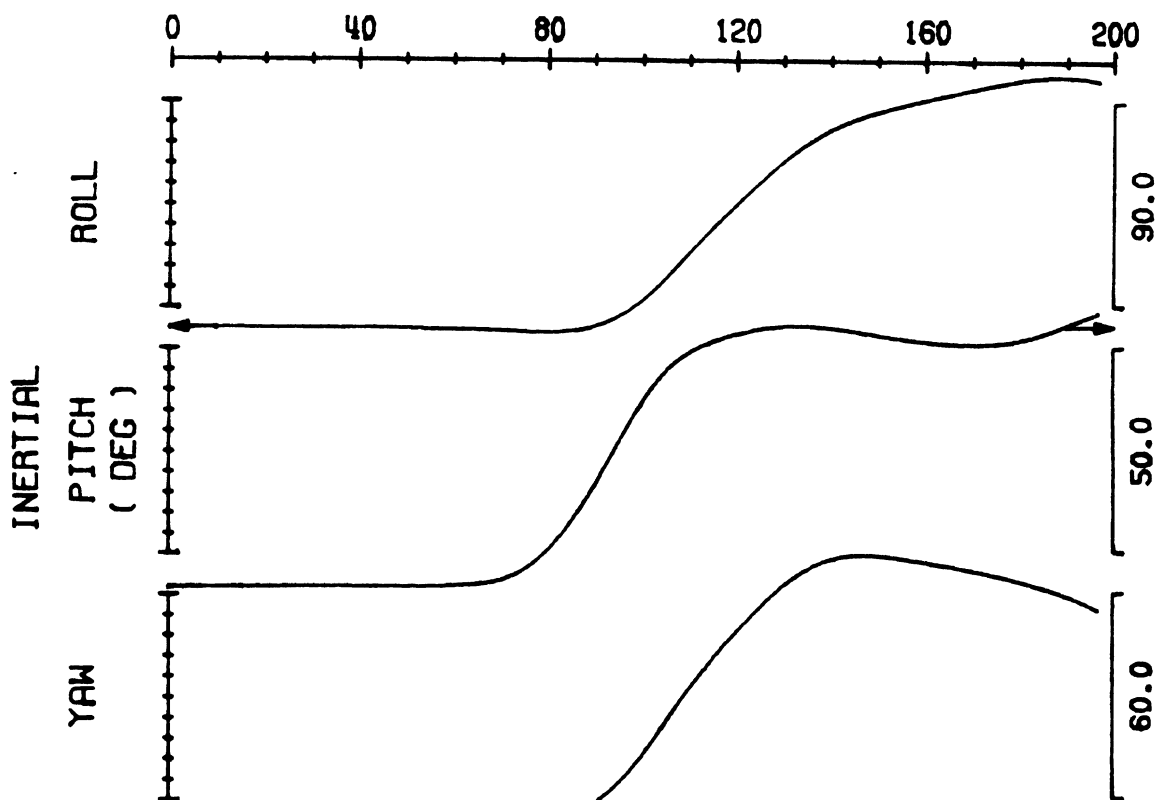


ANG ACCELERATIONS

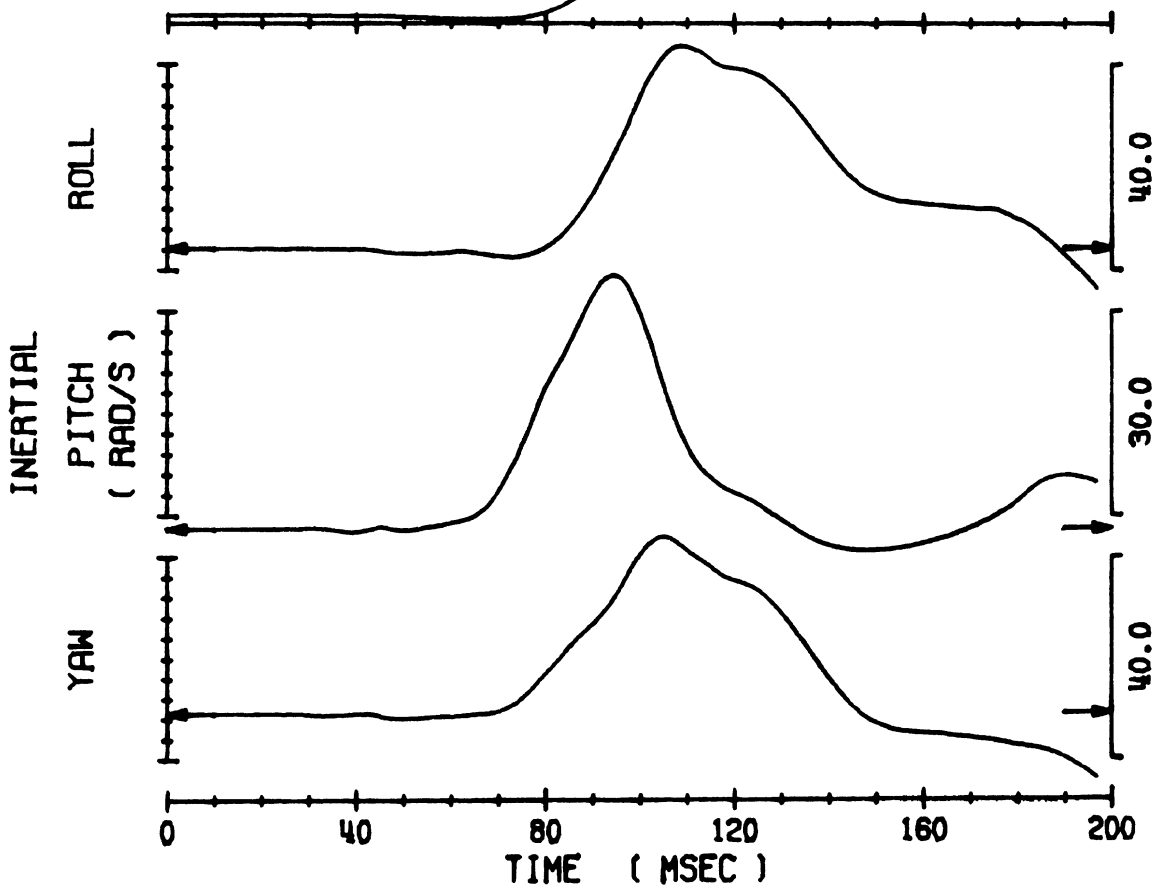


3-D ANGULAR MOTION

EULER ANGLES

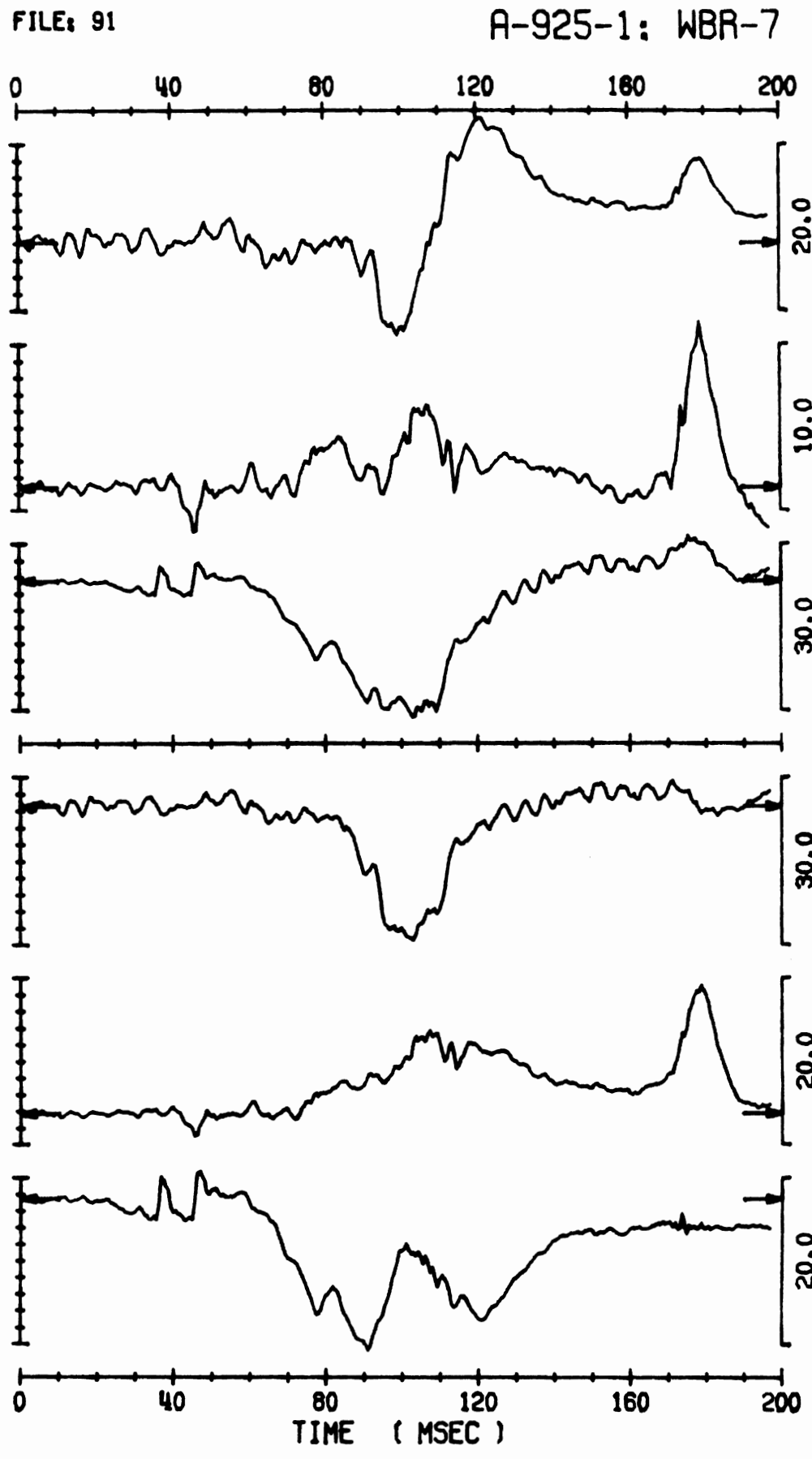


EULER RATES



3-D ROTATIONS

ACC OF: ANATOMICAL CENTER GSI= 99, HIC= 76



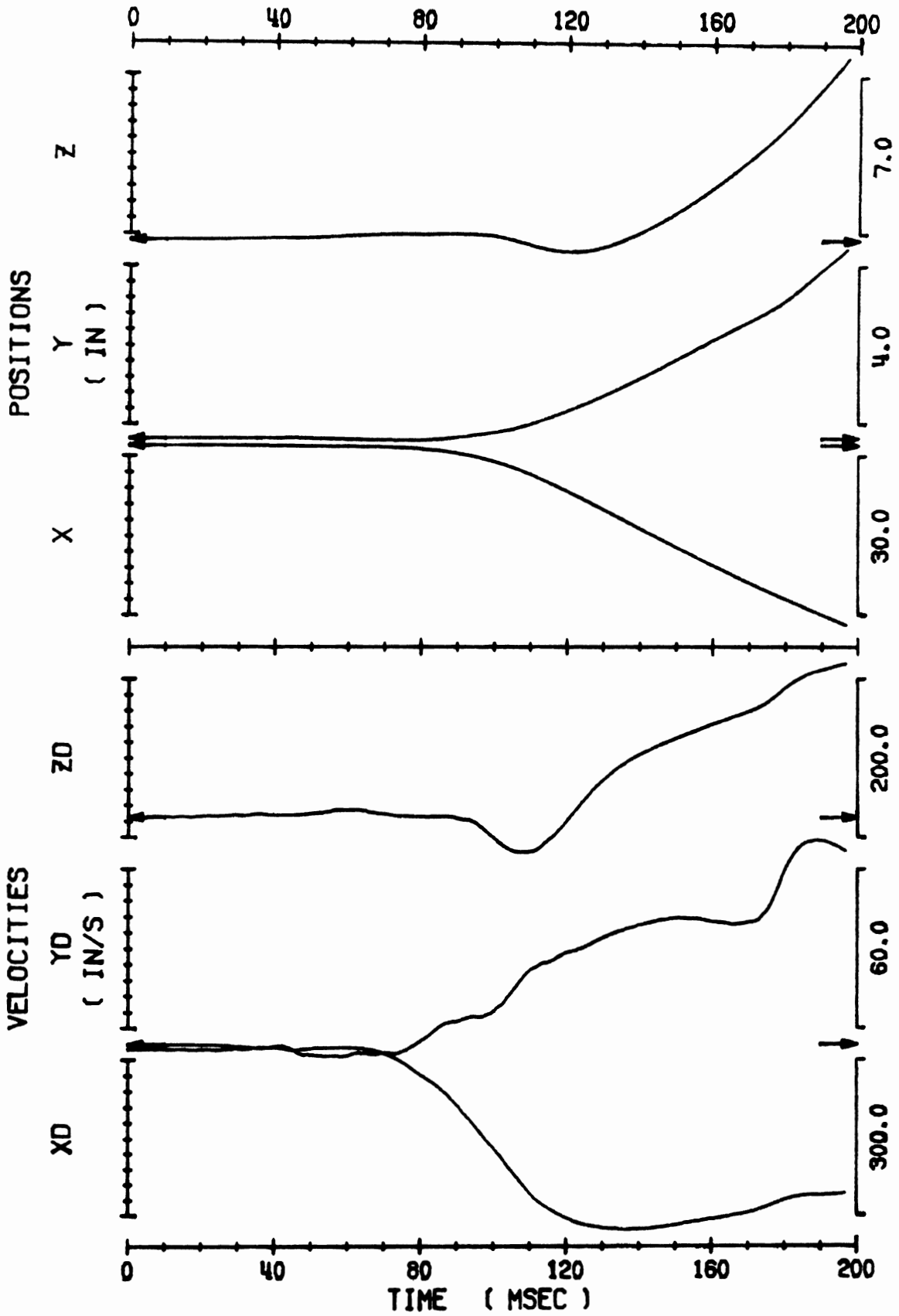
3-D ACCELERATIONS

FILE: 92

A-925-1: WBR-7

ANATOMICAL CENTER

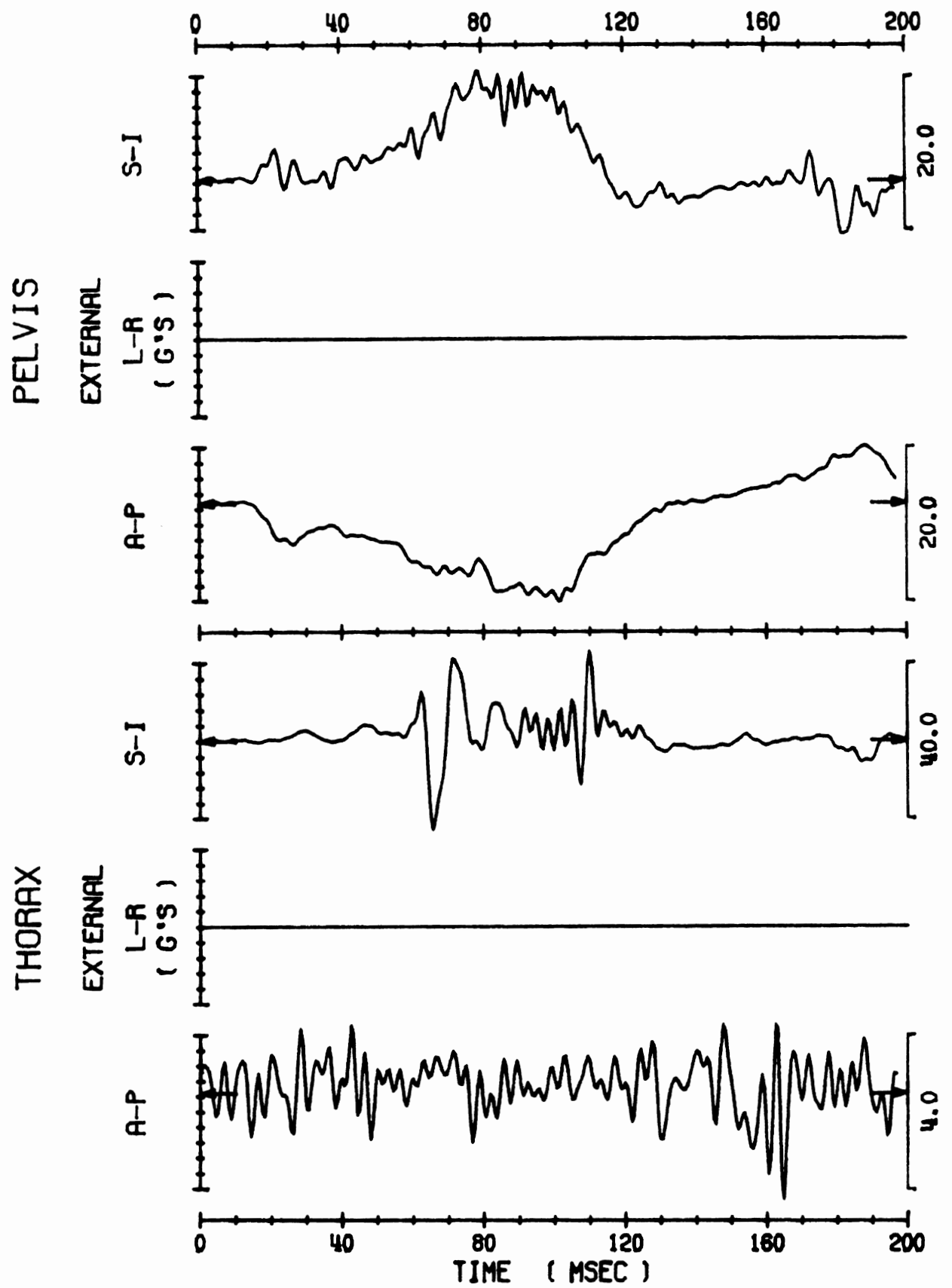
INERTIAL MOTION OF:



3-D TRANSLATIONS

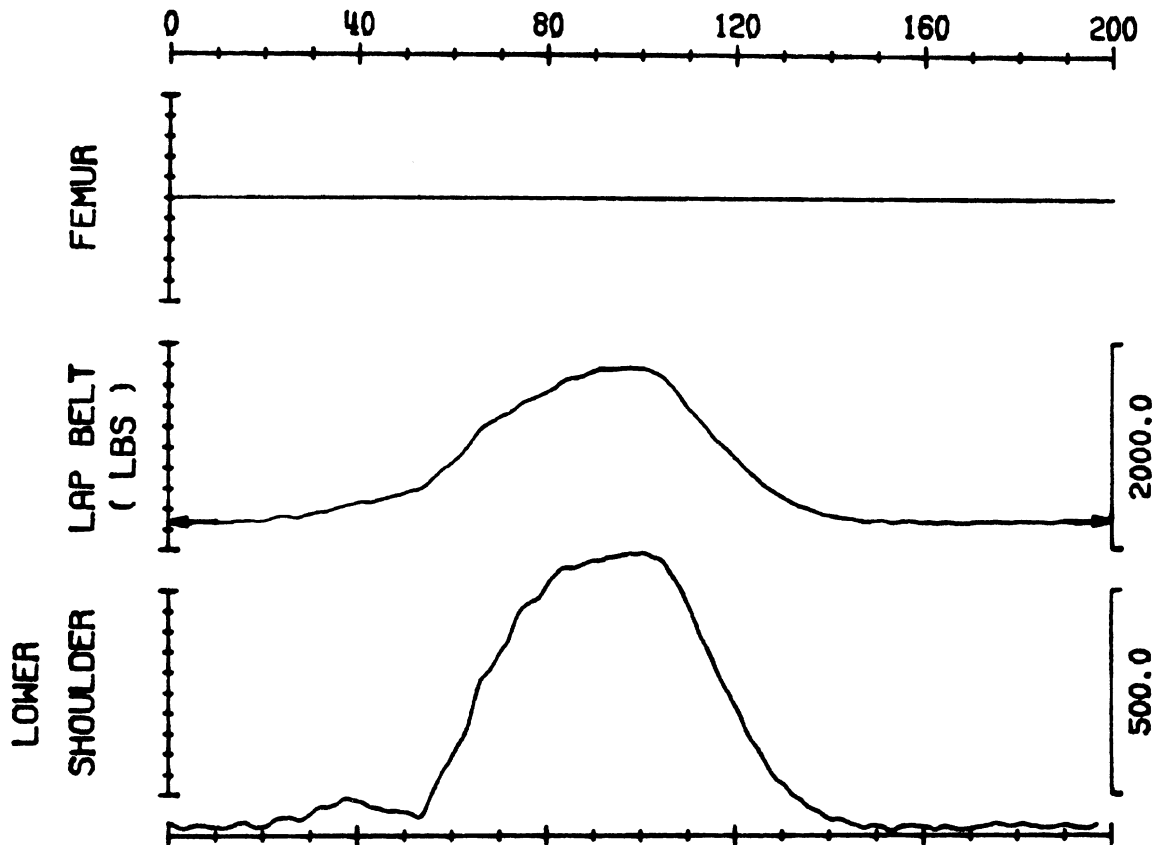
FILE: 94

A-925-2: WBR-7

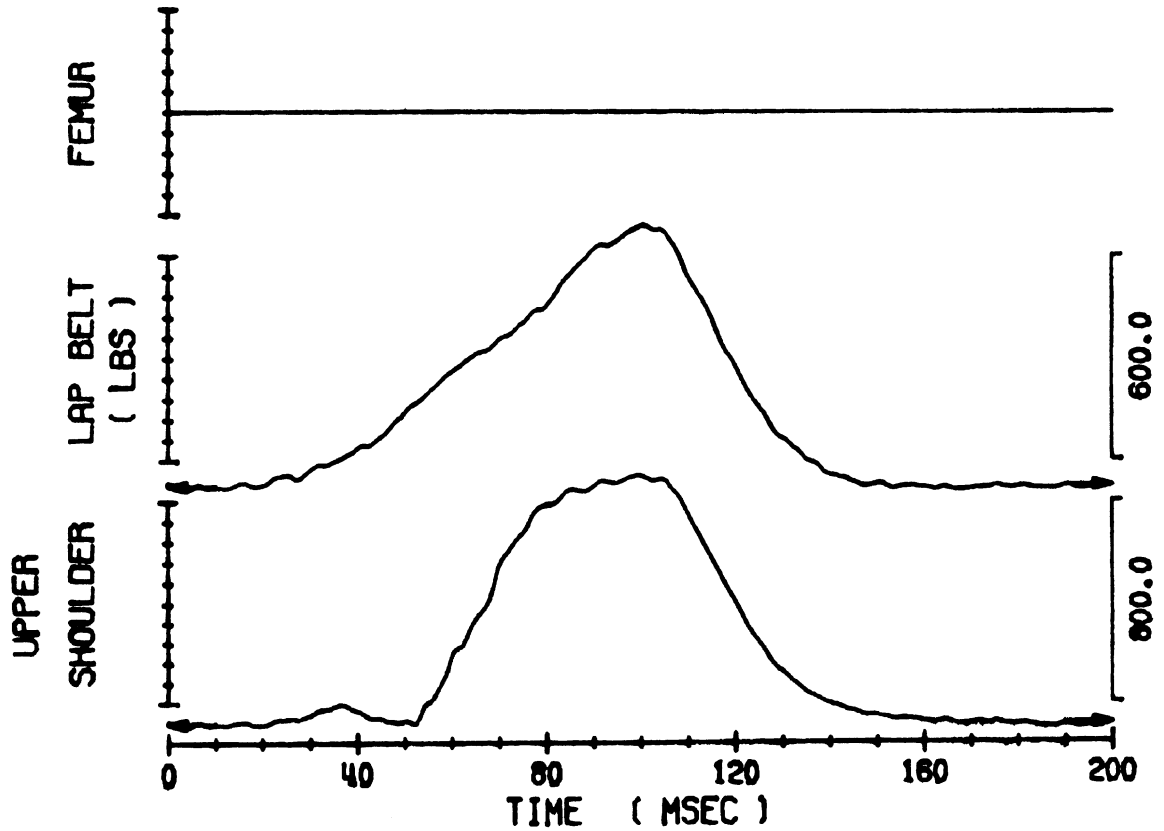


MEASURED ACCELERATIONS

RIGHT SIDE



LEFT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: A-926

SUBJECT: WBR-7

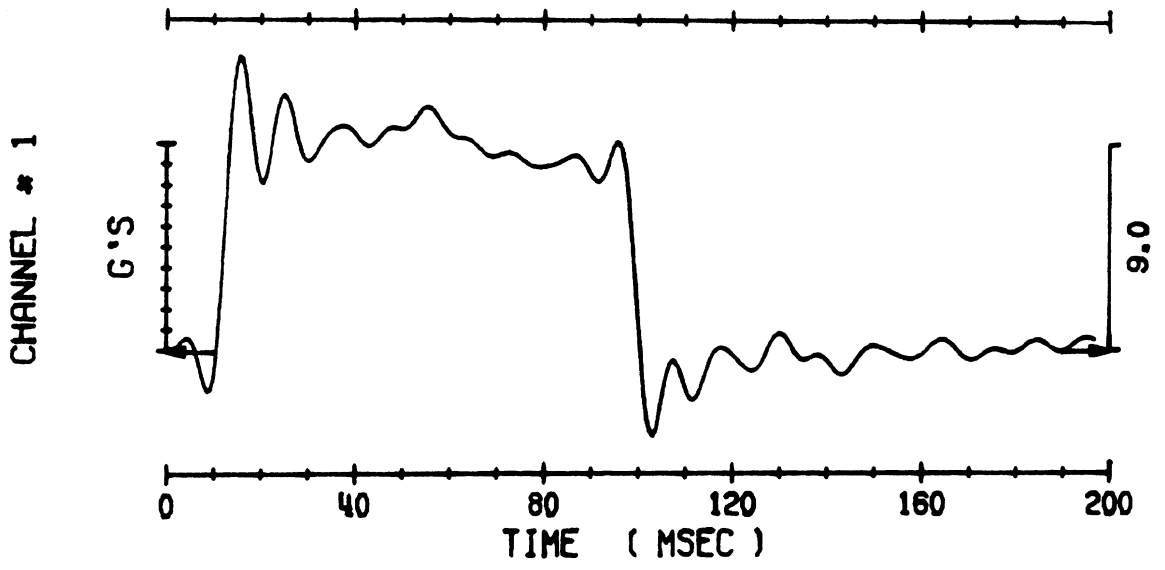
9.3 G-LEVEL
89. MS LONG
16.7 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1007. | 719. | 756. | 1509. | 0. | 0. |
| (LBS) @ (MS) | 89.3 | 87.5 | 88.1 | 86.2 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|--------|-------|--------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 0. | 0. | 0. | 0. | 0. | -2. | 8. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 79.7 | 67.5 |
| GSI= | 0 | | | | | | |
| EX PELVIS ACC: | 0. | -12. | 6. | 0. | 0. | -4. | 13. |
| (G'S) @ | 0.0 | 81.5 | 179.8 | 0.0 | 0.0 | 115.6 | 85.9 |
| | | | | | | | |
| HEAD ANG ACC : | 2146. | -640. | 846. | -1724. | 1349. | -1071. | 784. |
| (RAD/S/S) @ | 97.5 | 169.7 | 84.7 | 96.7 | 77.3 | 96.0 | 66.5 |
| HEAD ANG VEL : | 40.9 | 6.1 | 17.4 | -10.7 | 36.5 | -0.7 | 15.9 |
| (RAD/S) @ | 87.5 | 177.8 | 132.4 | 174.3 | 86.8 | 110.7 | 81.1 |
| EULER ANGLES : | | | 85.2 | | 66.1 | | 118.3 |
| (DEGREES) @ | | | 134.1 | | 174.3 | | 168.3 |
| | | | | | | | |
| HEAD C.G. ACC: | 30. | -18. | -6. | -2. | 18. | -25. | 6. |
| (G'S) @ | 89.3 | 81.2 | 96.6 | 175.2 | 159.2 | 90.5 | 140.4 |
| HEAD C.G. HIC= | 87 | | | | | | |
| HEAD C.G. VEL: | 365. | -362. | -6. | 2. | 75. | -78. | 136. |
| (IN/S) @ | 125.0 | 122.5 | 30.6 | 34.3 | 168.2 | 98.2 | 174.3 |
| HEAD C.G. DIS: | | | -11.1 | | 0.8 | | -2.4 |
| (IN) @ | | | 116.8 | | 116.8 | | 117.0 |

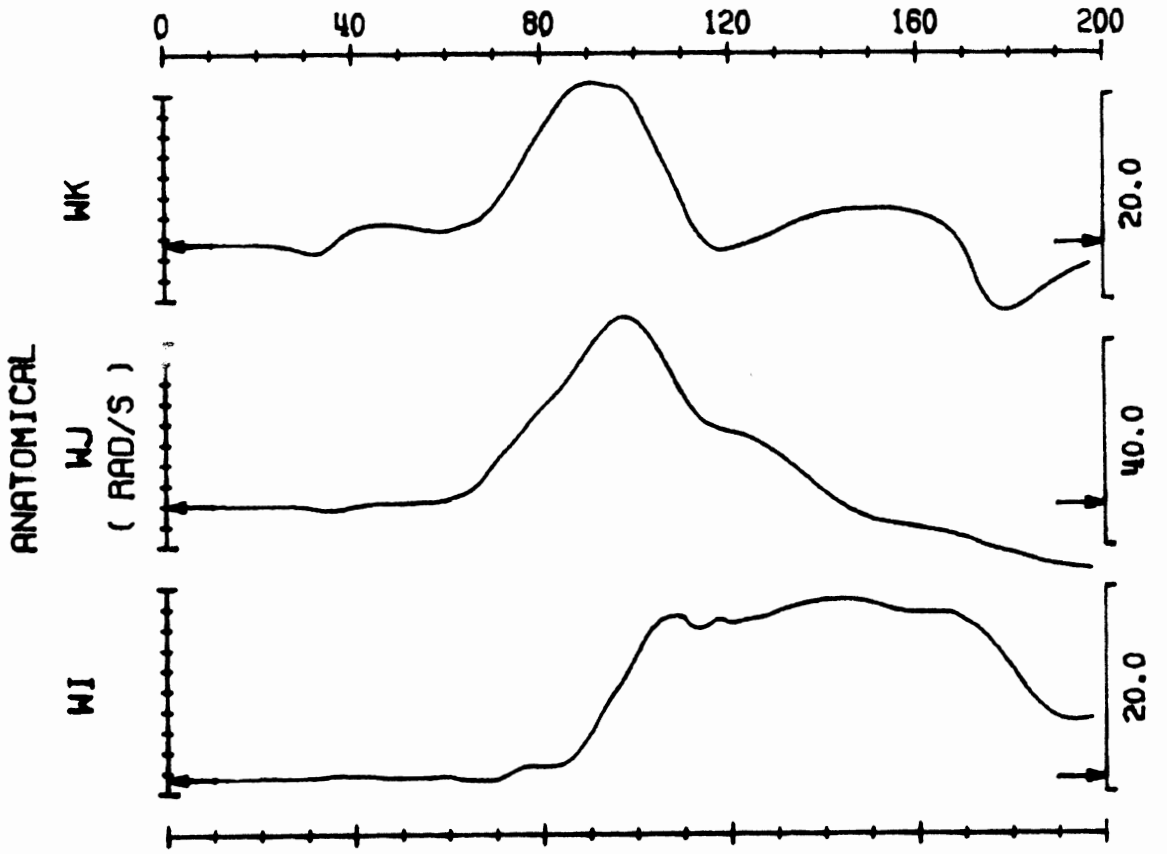
FILE: 96

A-926-1: WBR-7

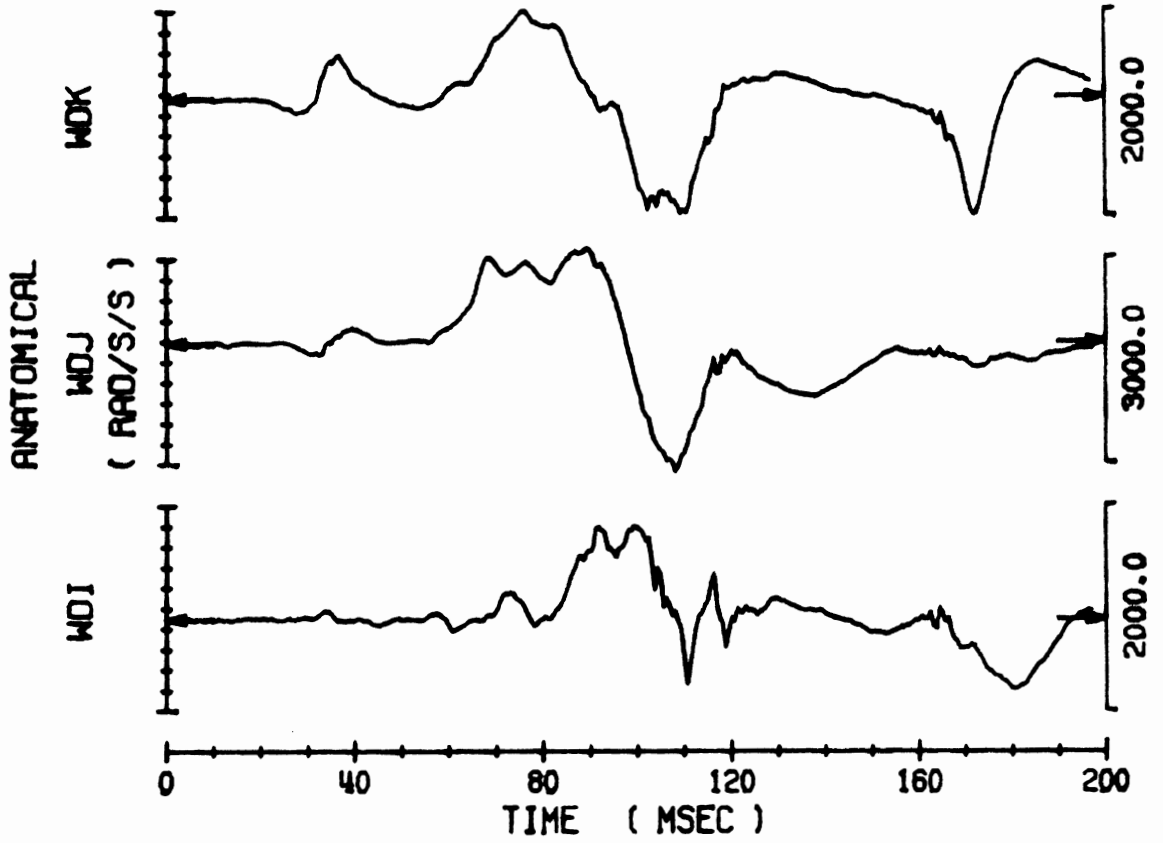


SLED DECELERATION

ANG VELOCITIES



ANG ACCELERATIONS



TIME (MSEC)

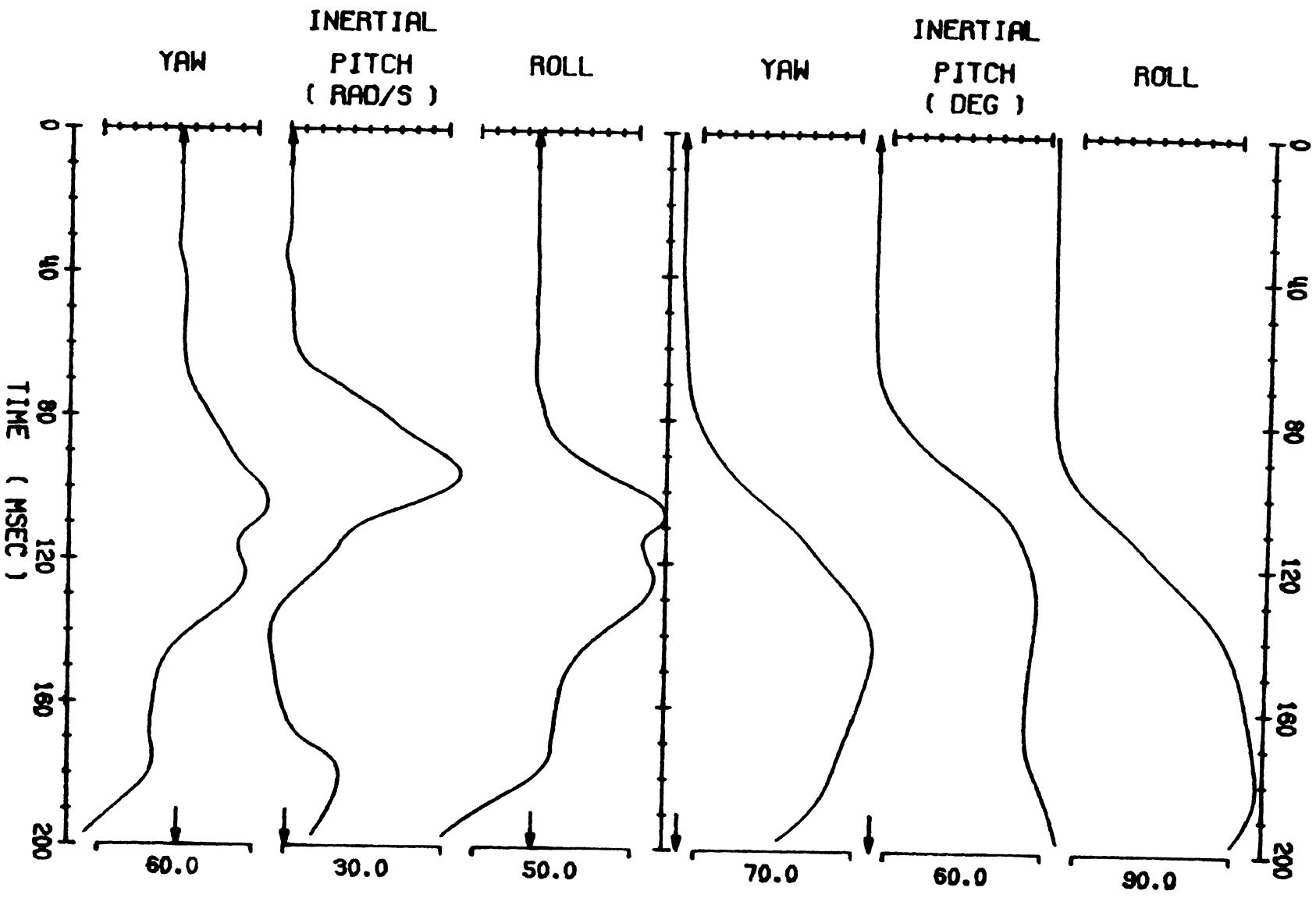
3-D ANGULAR MOTION

EULER RATES

EULER ANGLES

FILE: 101

A-926-1: MBR-7



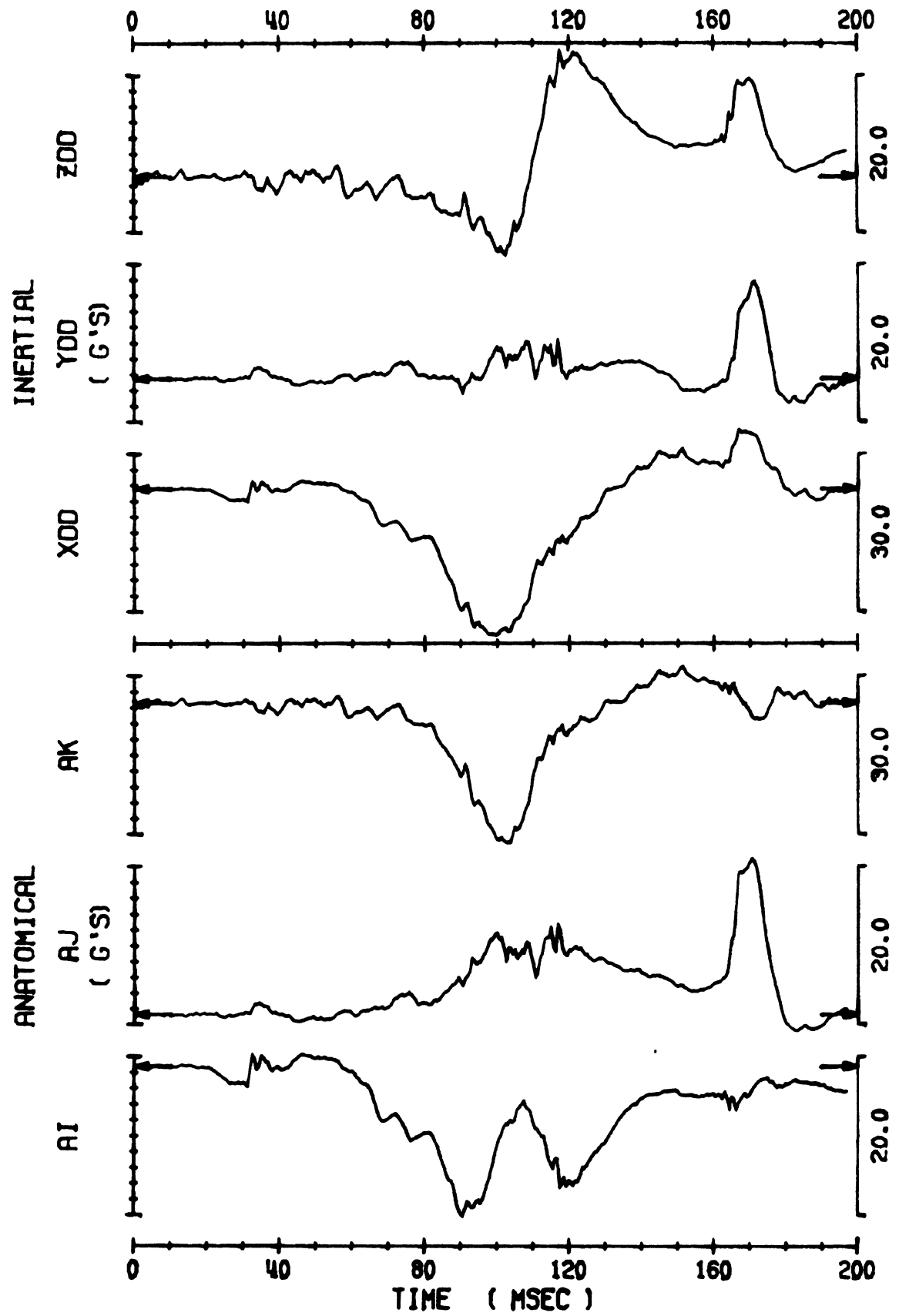
3-D ROTATIONS

C-80

ACC OF: ANATOMICAL CENTER GSI= 121, HIC= 87

FILE: 102

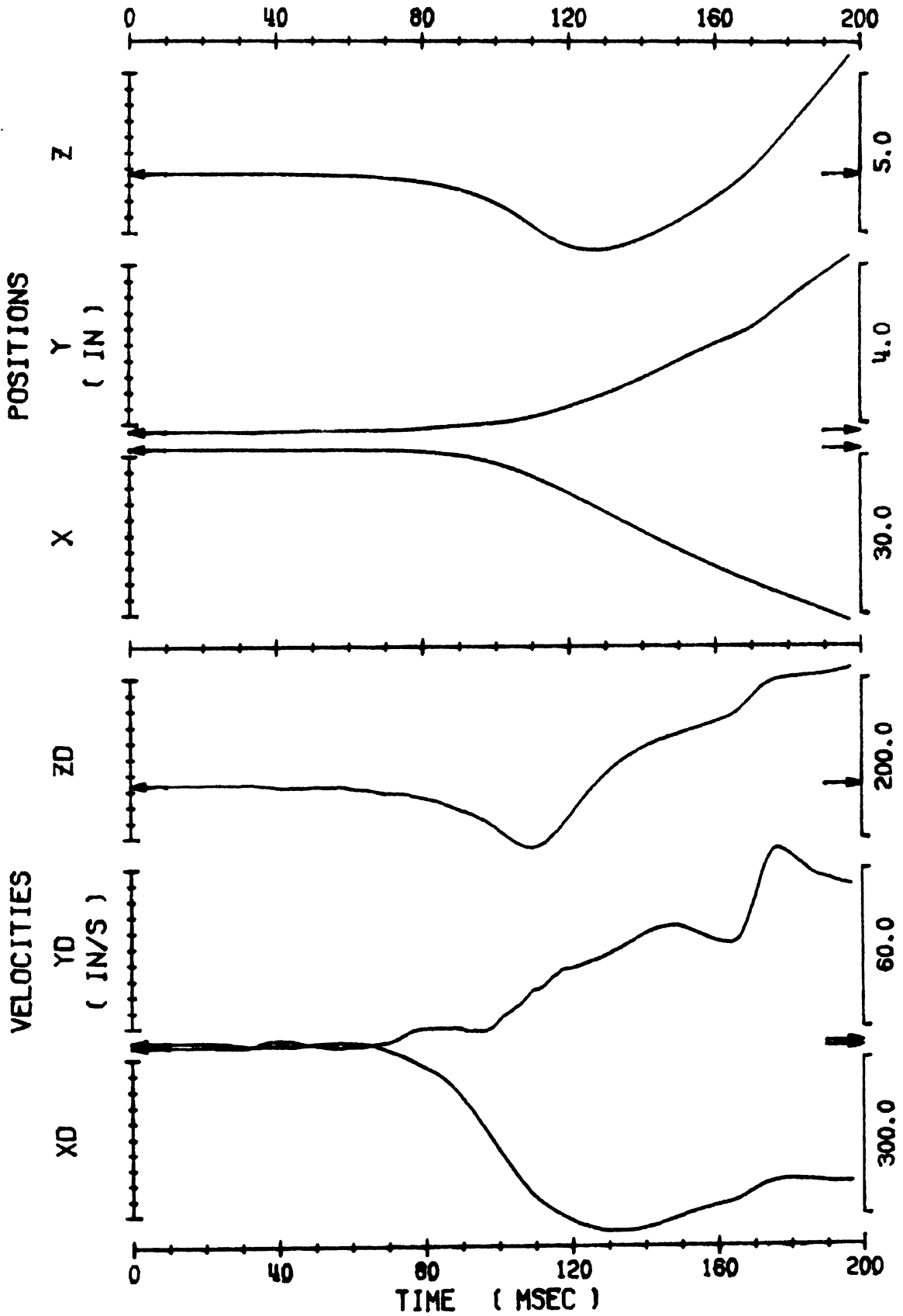
A-926-1: WBR-7



3-D ACCELERATIONS

ANATOMICAL CENTER

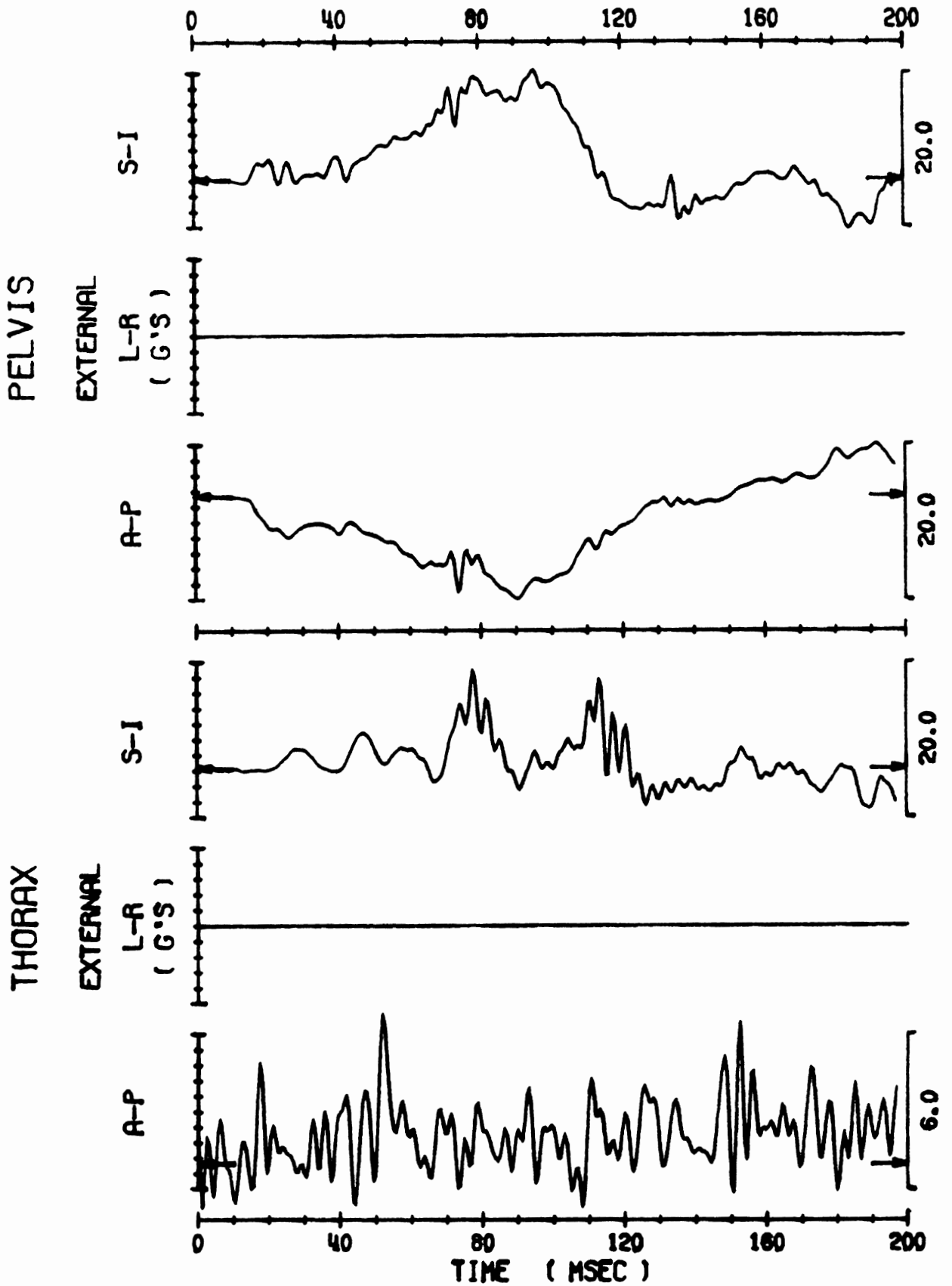
INERTIAL MOTION OF:



3-D TRANSLATIONS

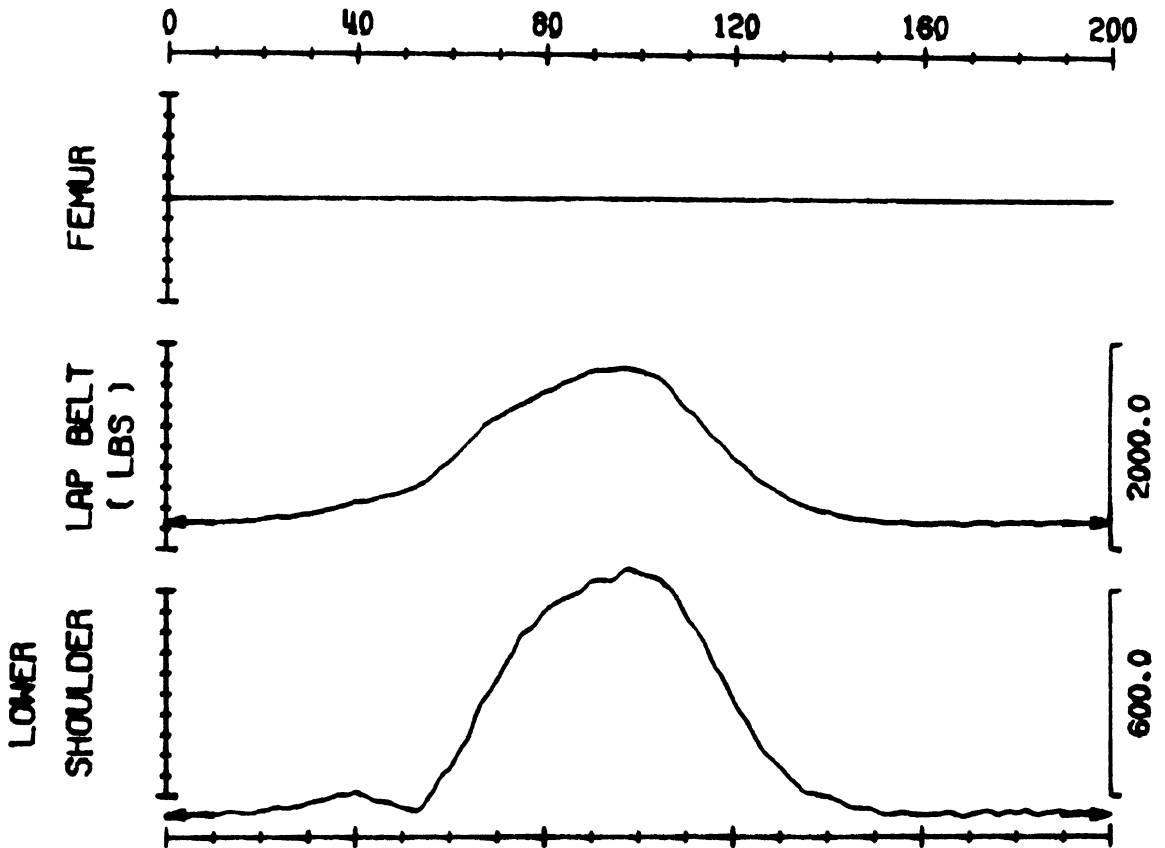
FILE: 104

A-926-2: WBR-7

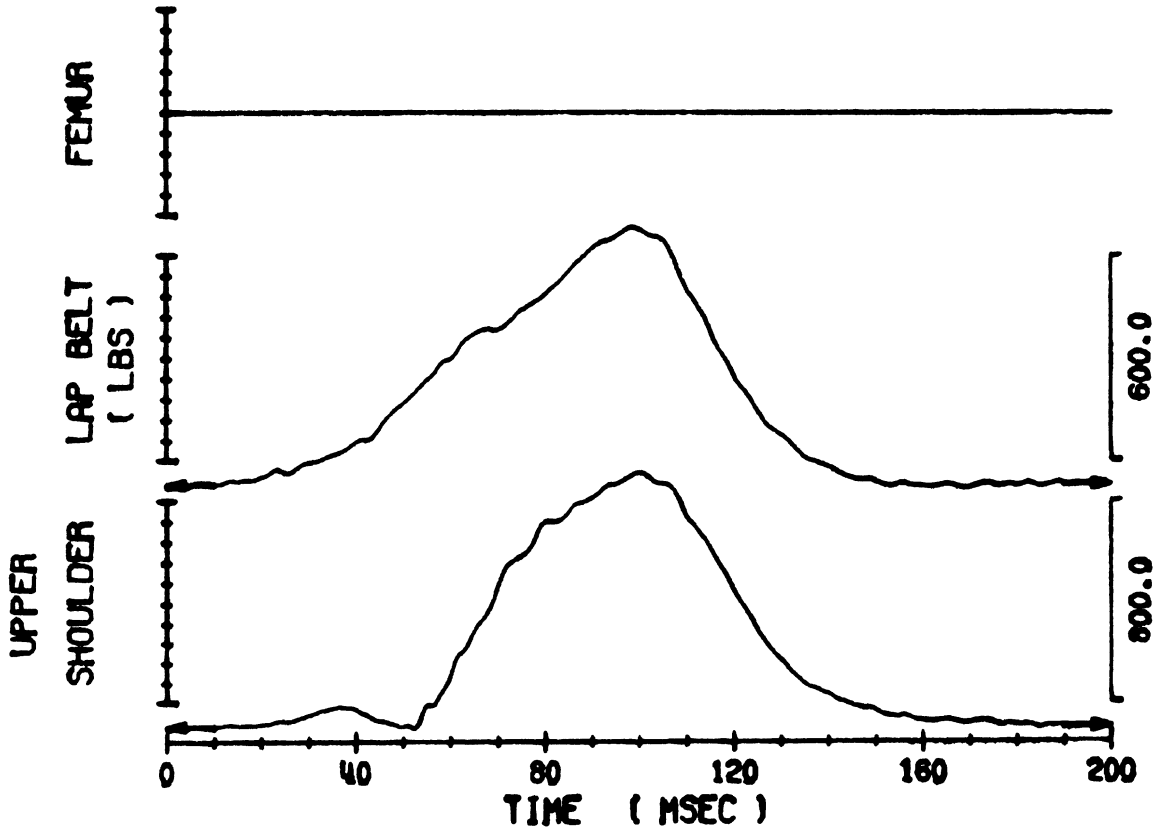


MEASURED ACCELERATIONS

RIGHT SIDE



LEFT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: A-934

SUBJECT: WBR-8

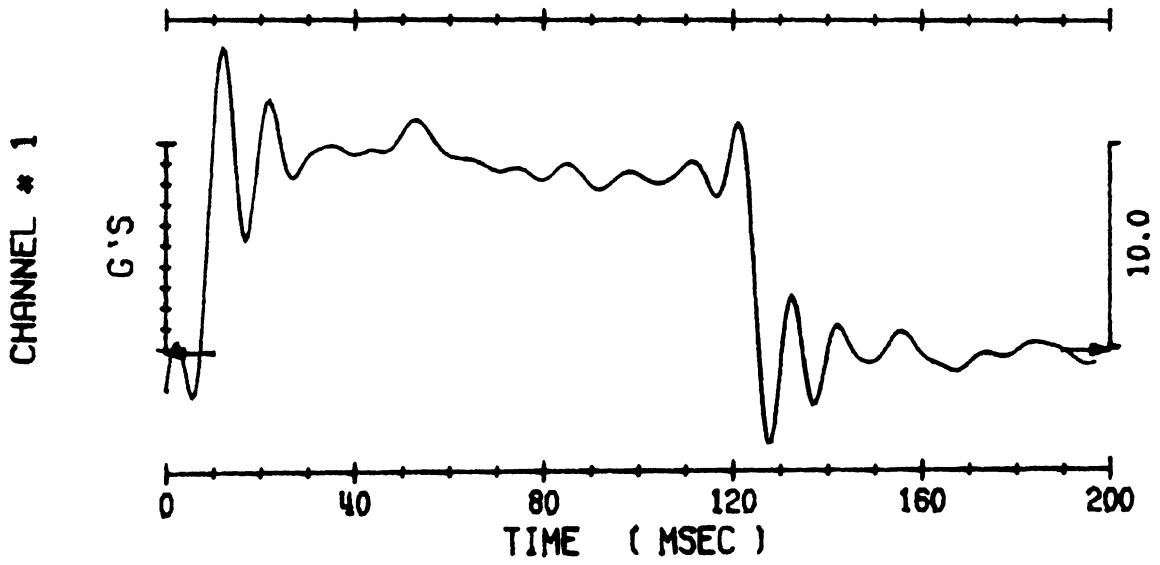
9.3 G-LEVEL
118. MS LONG
23.1 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 941. | 677. | 694. | 1468. | 0. | 0. |
| (LBS) @ (MS) | 86.4 | 85.8 | 81.4 | 81.4 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 24. | -23. | -3. | -10. | 7. | -4. | 2. |
| (G'S) @ | 73.3 | 71.2 | 118.9 | 118.7 | 136.0 | 116.1 | 139.2 |
| GSI= | 112 | | | | | | |
| EX PELVIS ACC: | 0. | -17. | 4. | 0. | 0. | 2. | 9. |
| (G'S) @ | 0.0 | 80.7 | 138.4 | 0.0 | 0.0 | 106.7 | 76.6 |
| | | | | | | | |
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

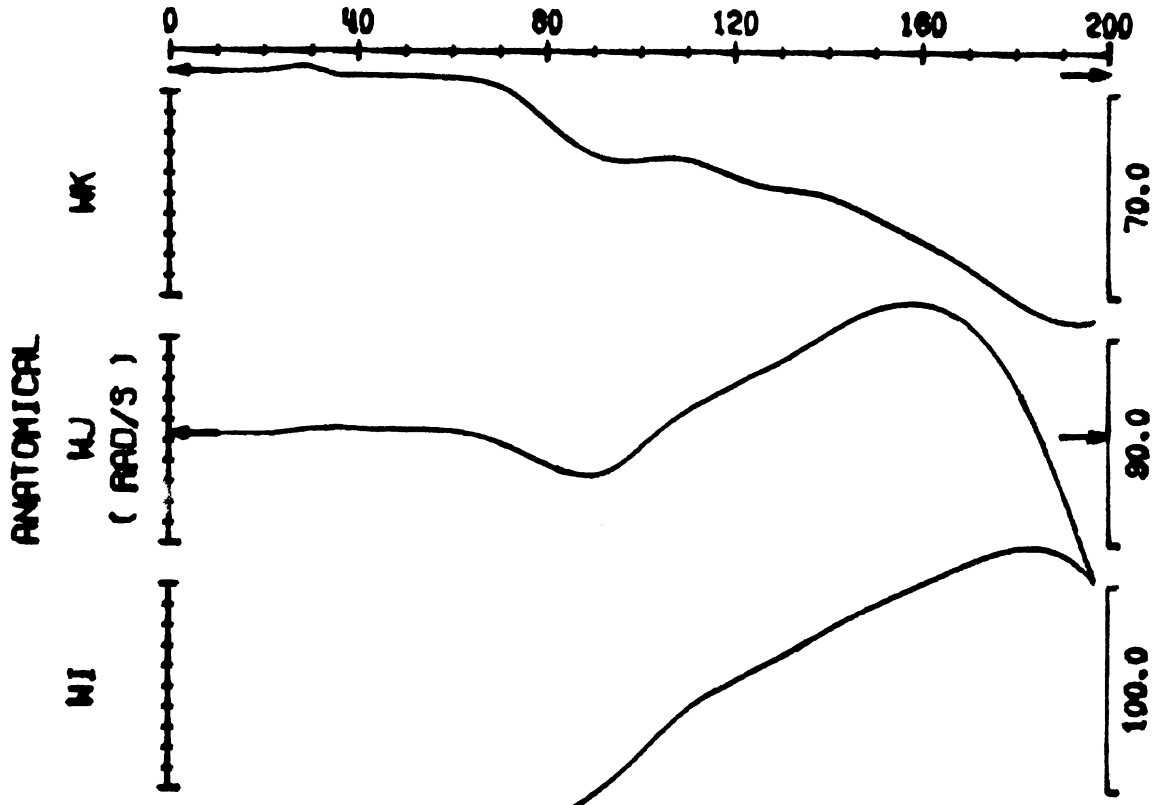
FILE: 106

A-934-1: WBR-8

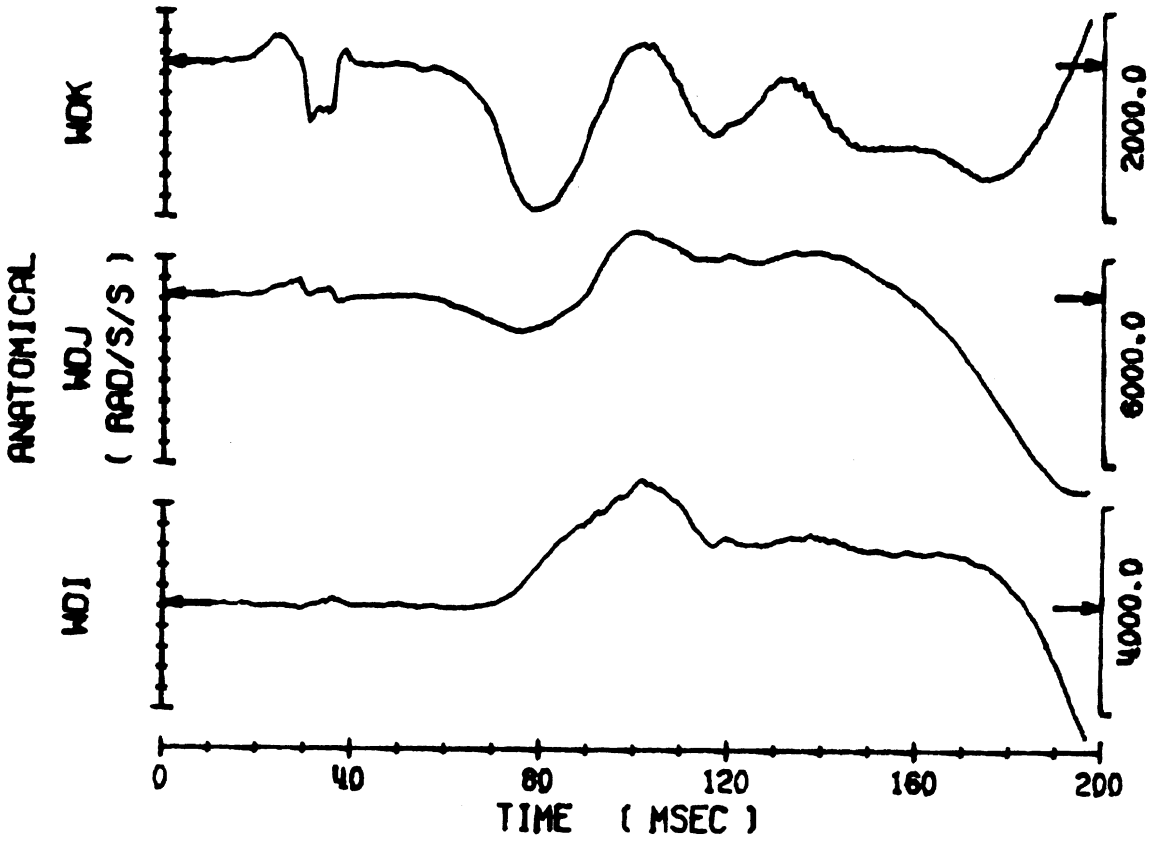


SLED DECELERATION

ANG VELOCITIES



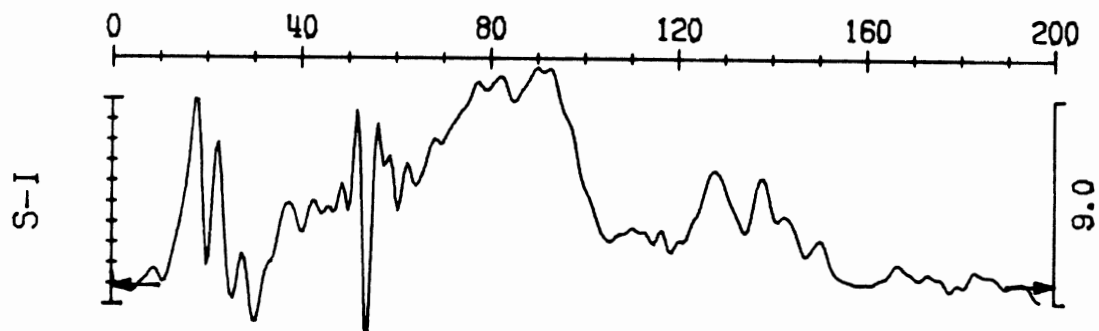
ANG ACCELERATIONS



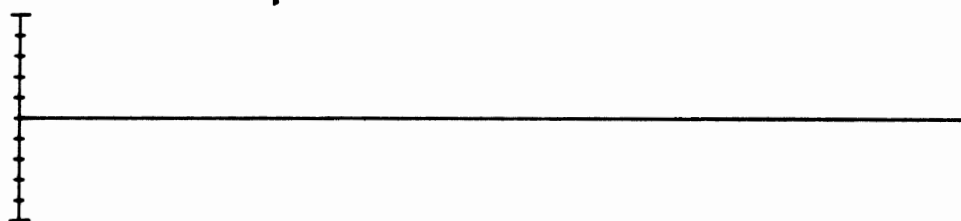
3-D ANGULAR MOTION

PELVIS

EXTERNAL



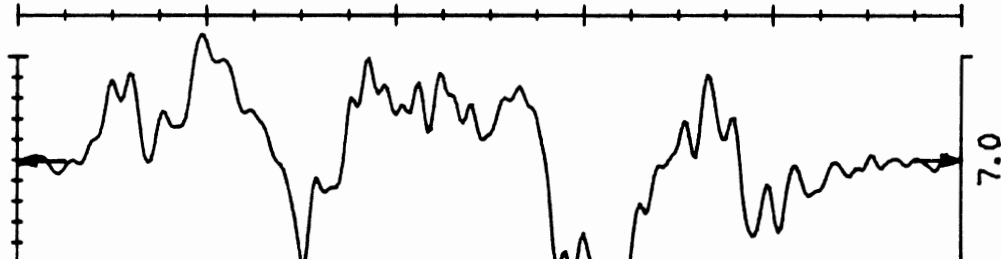
L-R
(G'S)



A-P



S-I



L-R
(G'S)



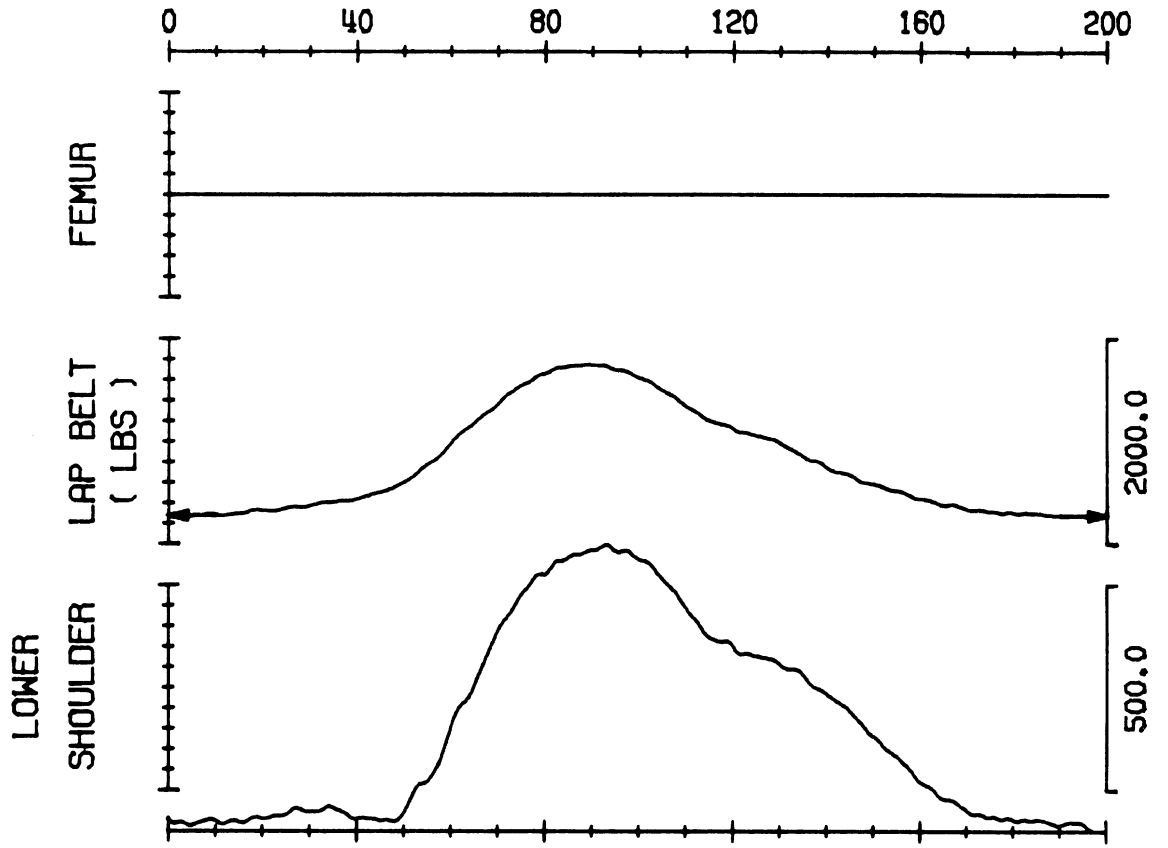
A-P



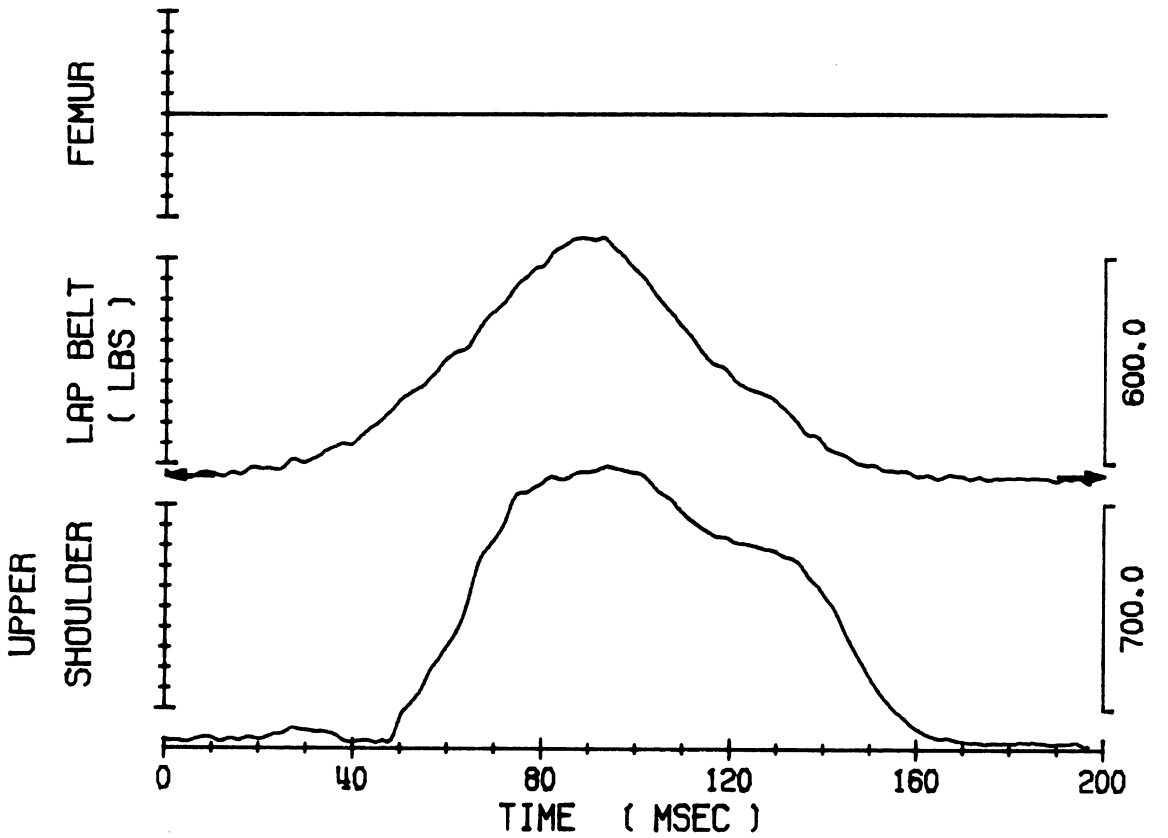
TIME (MSEC)

MEASURED ACCELERATIONS

RIGHT SIDE



LEFT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: A-935

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SUBJECT: WBR-8

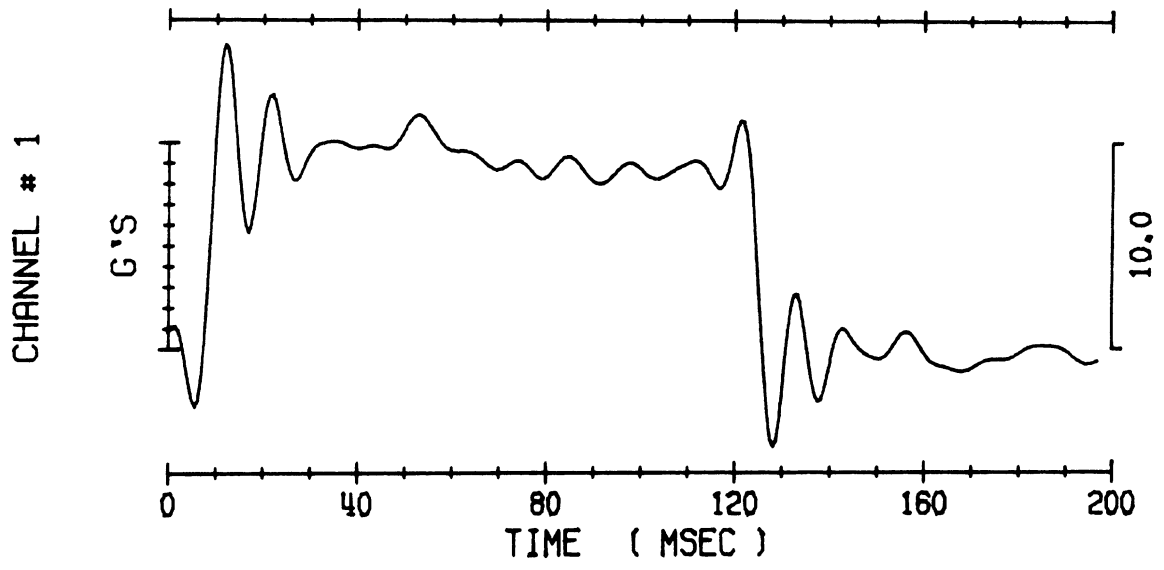
9.8 G-LEVEL
119. MS LONG
25.0 MPH DV

| | SHOULDER BELT | | LAP BELT | | REARS | |
|--------------|---------------|-------|----------|-------|-------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 915. | 656. | 747. | 1435. | 0. | 0. |
| (LBS) @ (MS) | 86.5 | 82.1 | 78.4 | 74.0 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 28. | -25. | -1. | -17. | 12. | -4. | 6. |
| (G'S) @ | 69.6 | 70.7 | 113.9 | 115.7 | 135.3 | 94.4 | 64.2 |
| GSI= | 127 | | | | | | |
| EX PELVIS ACC: | 0. | -15. | 3. | 0. | 0. | -2. | 10. |
| (G'S) @ | 0.0 | 77.0 | 138.4 | 0.0 | 0.0 | 101.3 | 66.3 |
| | | | | | | | |
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

FILE: 116

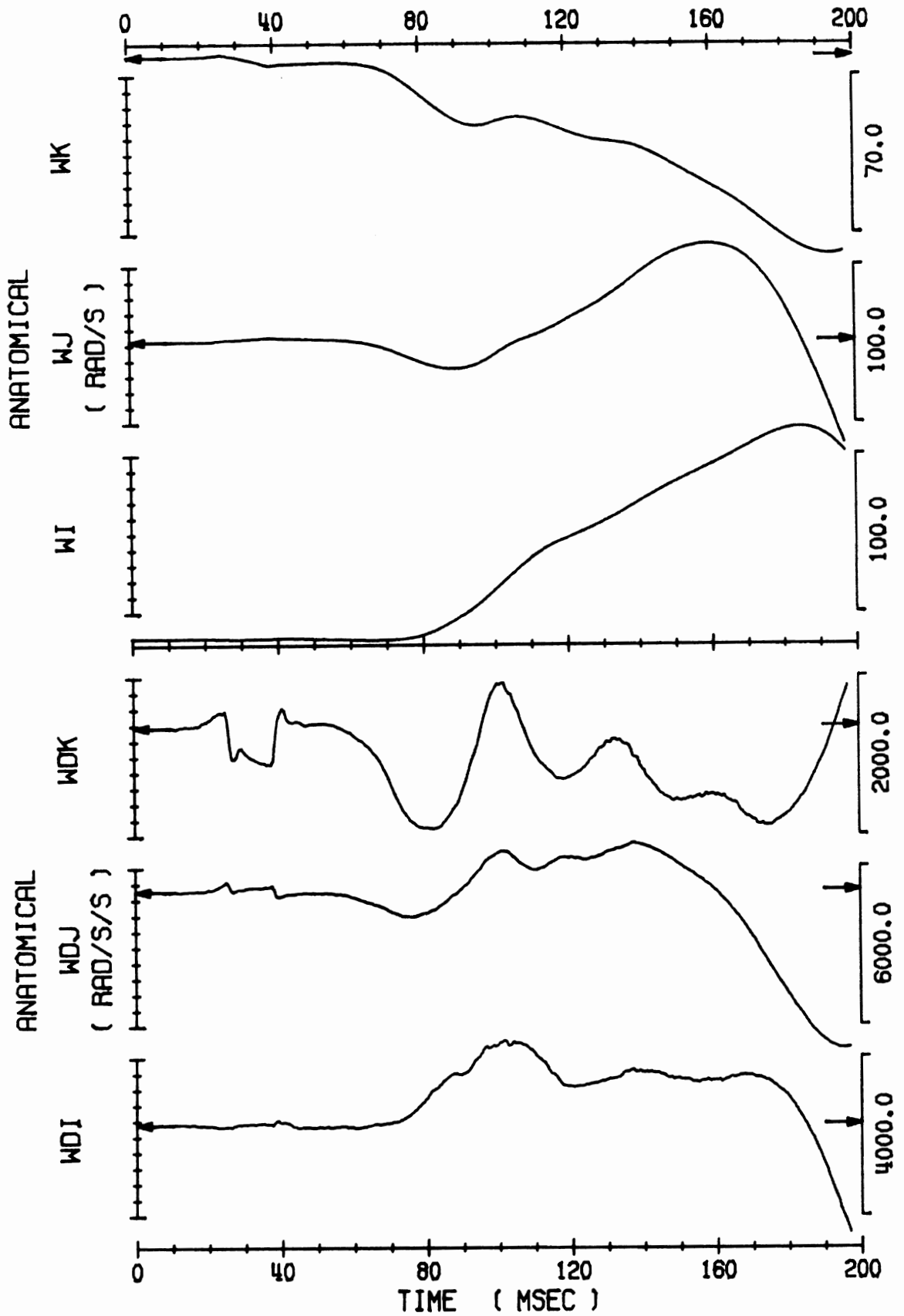
A-935-1: WBR-8



SLED DECELERATION

ANG VELOCITIES

ANG ACCELERATIONS



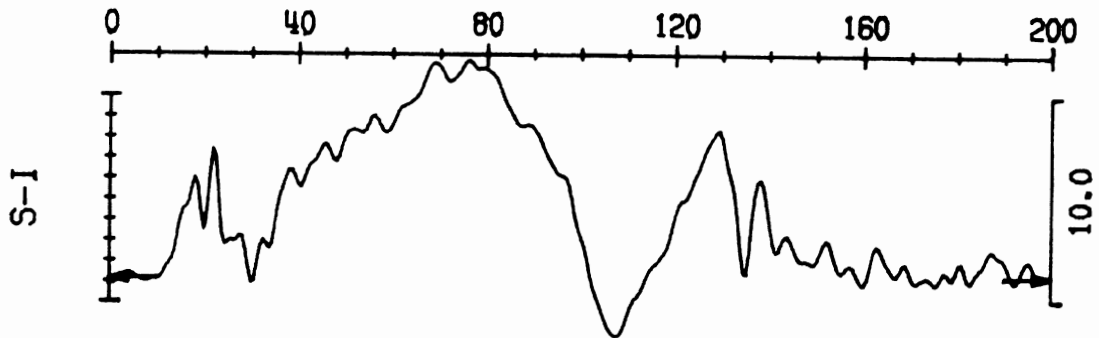
3-D ANGULAR MOTION

FILE: 124

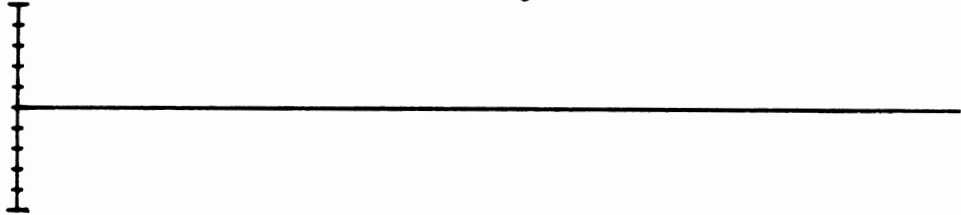
A-935-2: WBR-8

PELVIS

EXTERNAL



L-R
(G'S)

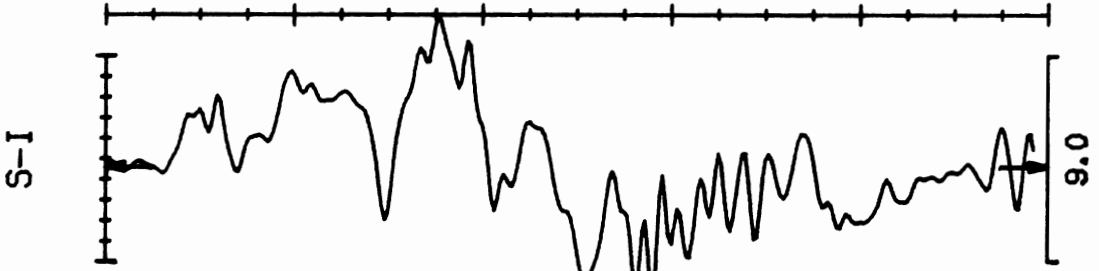


A-P



THORAX

EXTERNAL



L-R
(G'S)



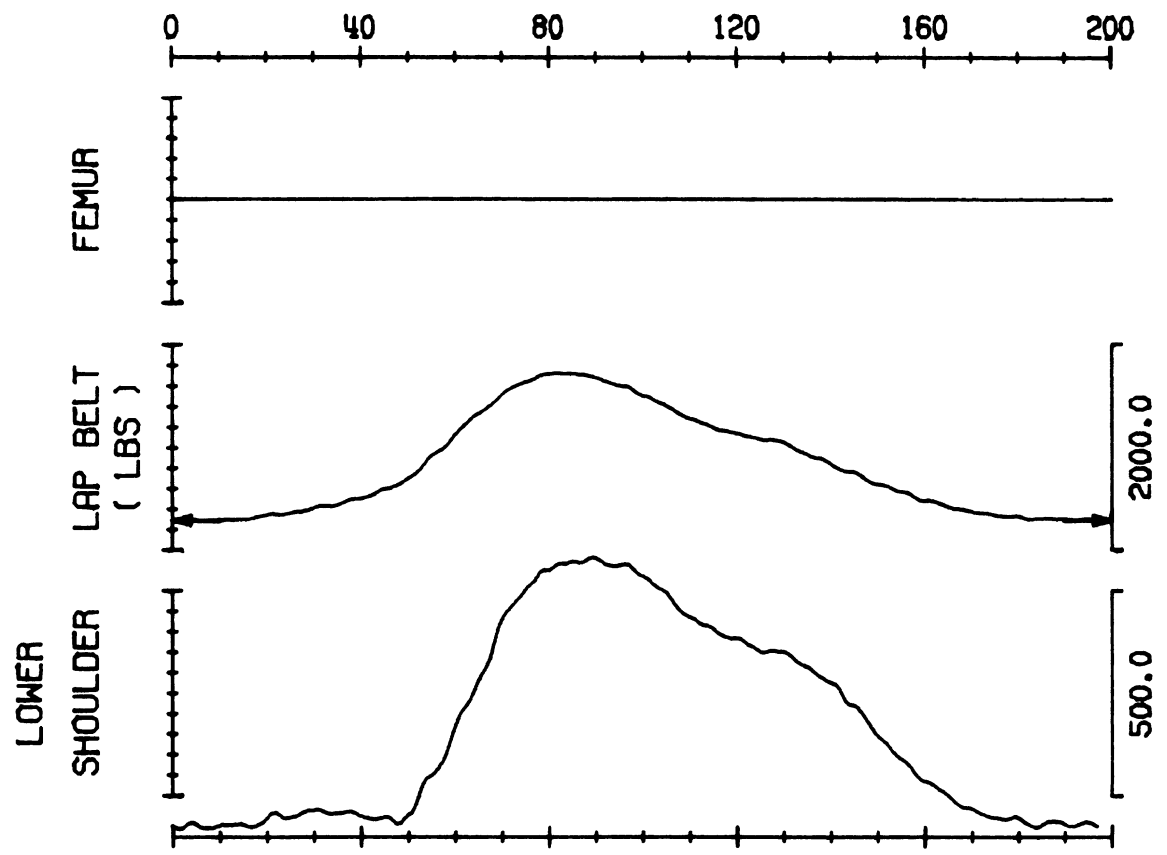
A-P



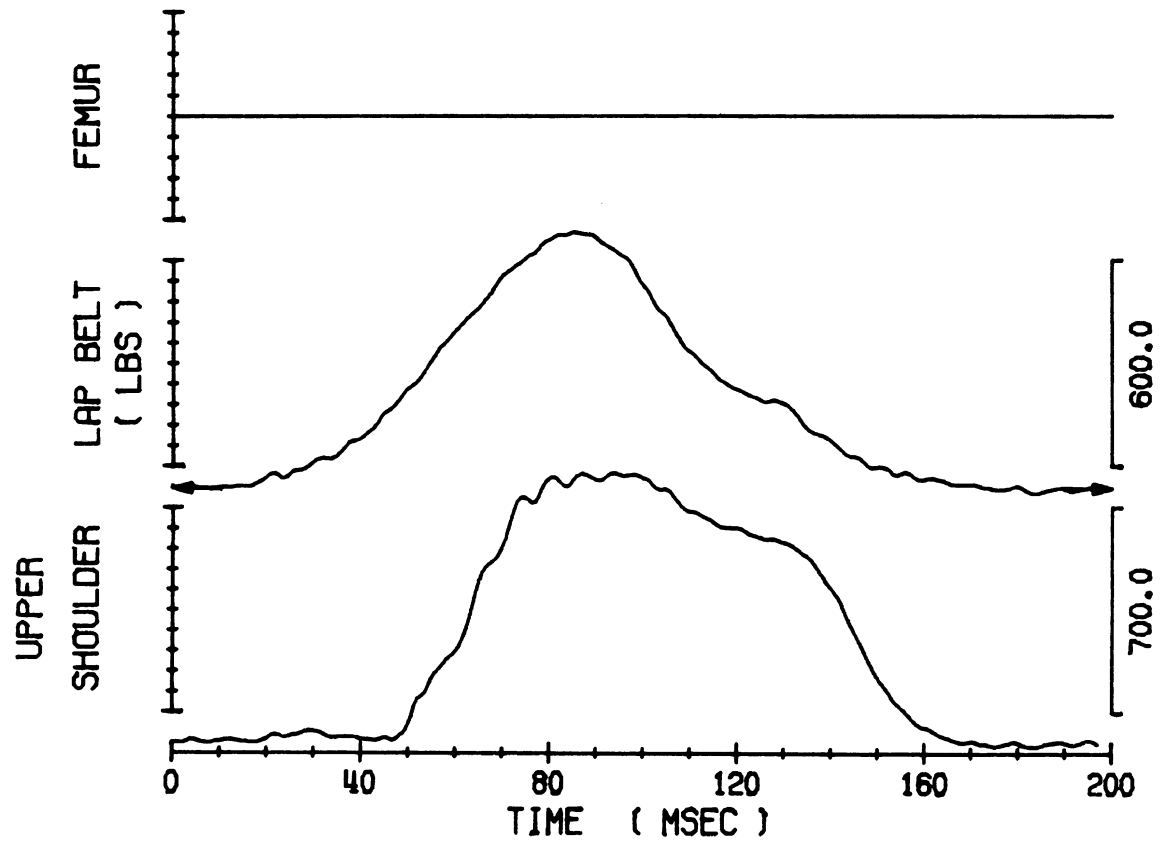
TIME (MSEC)

MEASURED ACCELERATIONS

RIGHT SIDE



LEFT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: A-936
=====

SUBJECT: WBR-8

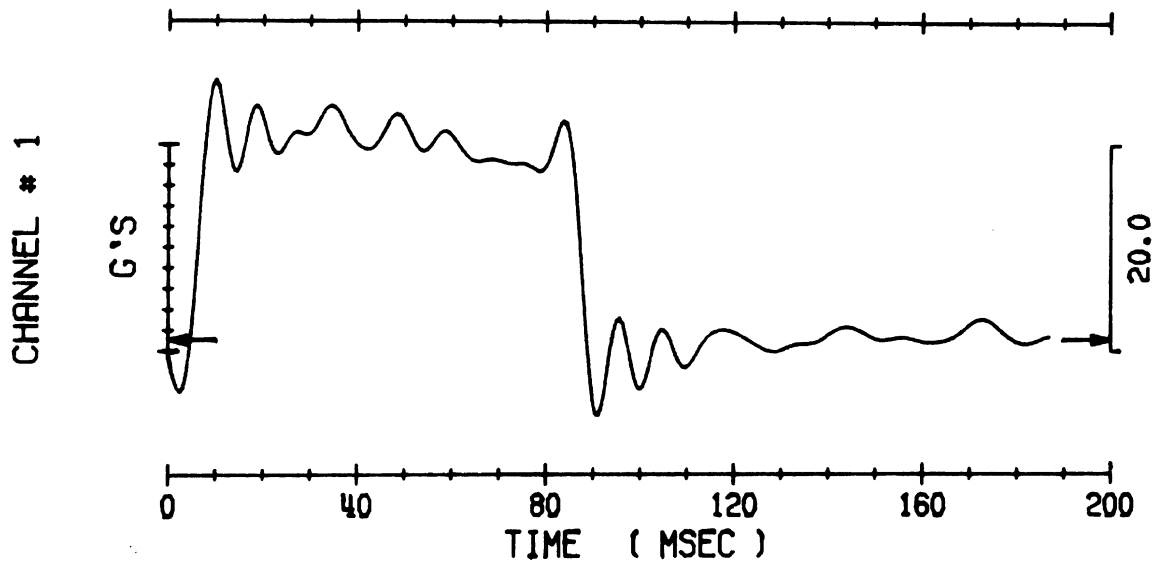
19.8 G-LEVEL
93. MS LONG
33.4 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| | ----- | ----- | ----- | ----- | ----- | ----- |
| PEAK FORCES: | 0. | 0. | 0. | 0. | 0. | 0. |
| (LBS) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 71. | -44. | -1. | -35. | 24. | -16. | 18. |
| (G'S) @ | 103.4 | 61.4 | 93.3 | 95.0 | 79.3 | 81.7 | 50.8 |
| GSI= | 695 | | | | | | |
| EX PELVIS ACC: | 42. | -33. | 12. | 0. | 0. | -0. | 26. |
| (G'S) @ | 63.4 | 63.4 | 155.3 | 0.0 | 0.0 | 83.8 | 66.2 |
| | | | | | | | |
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

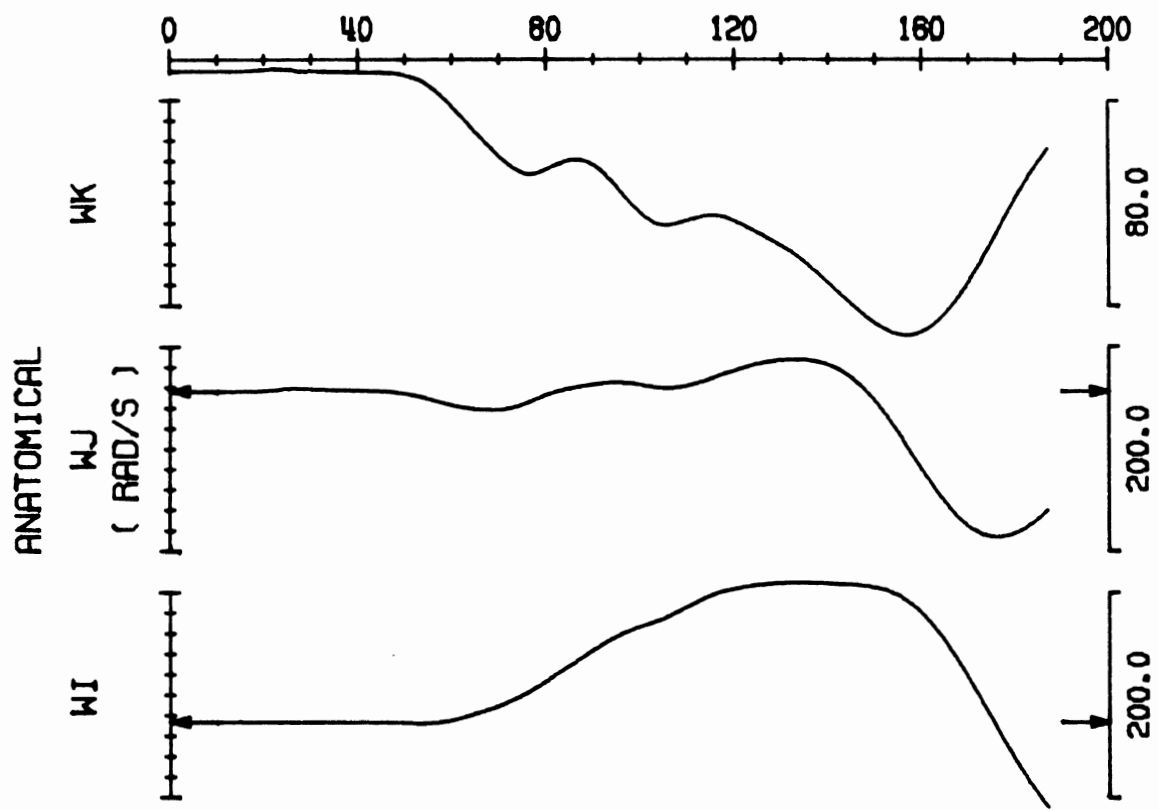
FILE: 126

A-936-1: WBR-8

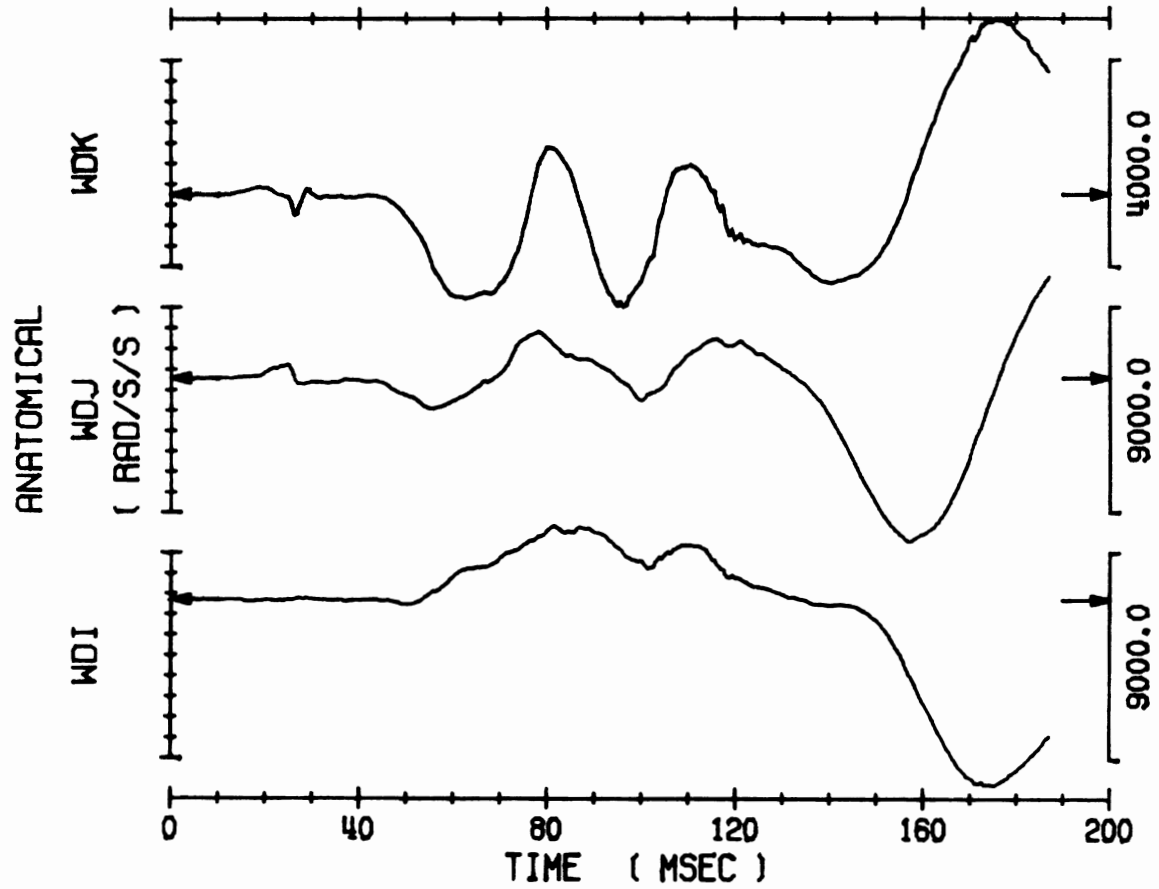


SLED DECELERATION

ANG VELOCITIES



ANG ACCELERATIONS

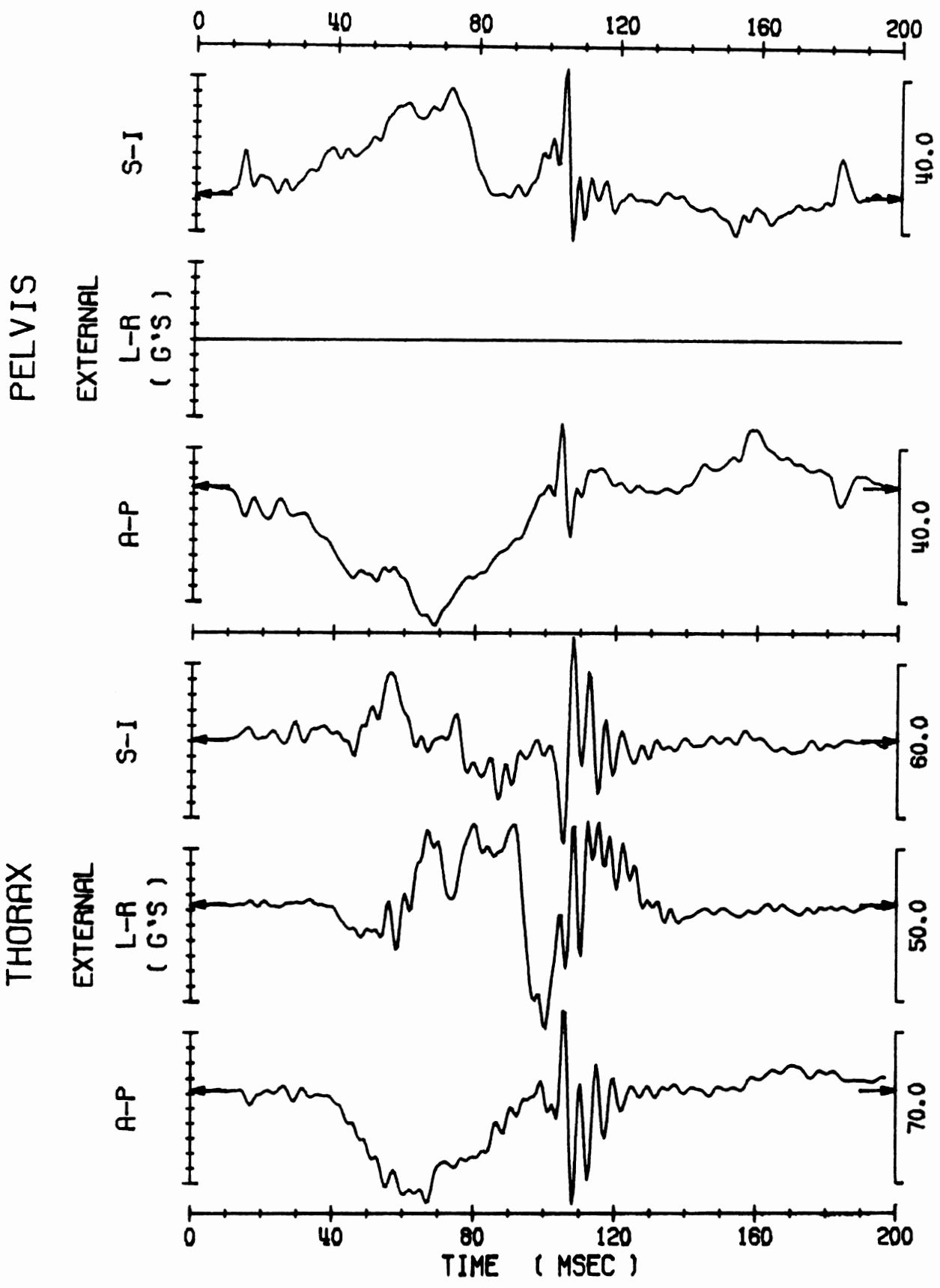


TIME (MSEC)

3-D ANGULAR MOTION

FILE: 134

A-936-2: WBR-8



MEASURED ACCELERATIONS

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: A-938
=====

SUBJECT: WBR-9

10.2 G-LEVEL
104. MS LONG
22.3 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 982. | 868. | 679. | 1480. | 0. | 0. |
| (LBS) @ (MS) | 83.6 | 90.4 | 72.9 | 74.8 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 30. | -23. | 7. | -8. | 14. | -18. | 4. |
| (G'S) @ | 96.7 | 97.6 | 112.6 | 111.9 | 124.5 | 97.1 | 107.6 |
| GSI= | 165 | | | | | | |
| EX PELVIS ACC: | 0. | -15. | 2. | 0. | 0. | -8. | 14. |
| (G'S) @ | 0.0 | 80.7 | 127.9 | 0.0 | 0.0 | 98.9 | 65.9 |

.....

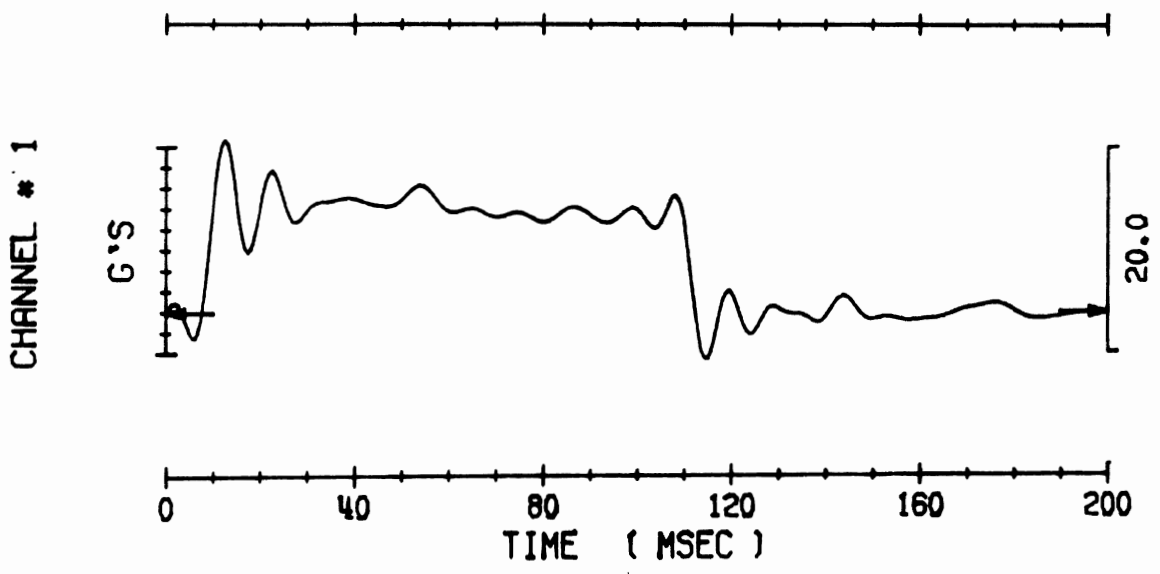
| | | | | | | | |
|----------------|-------|--------|-------|--------|-------|--------|-------|
| HEAD ANG ACC : | 4090. | -1041. | 896. | -3452. | 3629. | -1503. | 1013. |
| (RAD/S/S) @ | 93.6 | 114.9 | 86.1 | 93.5 | 67.6 | 95.5 | 70.1 |
| HEAD ANG VEL : | 65.1 | 8.1 | 22.9 | 5.4 | 58.5 | -15.9 | 19.2 |
| (RAD/S) @ | 85.4 | 125.3 | 102.6 | 172.3 | 83.7 | 172.9 | 81.8 |
| EULER ANGLES : | | | 95.9 | | 56.2 | | 95.8 |
| (DEGREES) @ | | | 104.8 | | 106.5 | | 104.8 |

.....

| | | | | | | | |
|----------------|-------|-------|-------|------|-------|------|-------|
| HEAD C.G. ACC: | 37. | -28. | 10. | -1. | 15. | -31. | 0. |
| (G'S) @ | 94.2 | 69.1 | 95.0 | 71.7 | 94.6 | 92.3 | 114.0 |
| HEAD C.G. HIC= | 144 | | | | | | |
| HEAD C.G. VEL: | 448. | -402. | 0. | -3. | 153. | 21. | 243. |
| (IN/S) @ | 151.1 | 129.1 | 37.3 | 81.2 | 177.3 | 98.7 | 169.2 |
| HEAD C.G. DIS: | | | -7.7 | | 1.1 | | 1.6 |
| (IN) @ | | | 102.3 | | 102.3 | | 102.3 |

FILE: 135

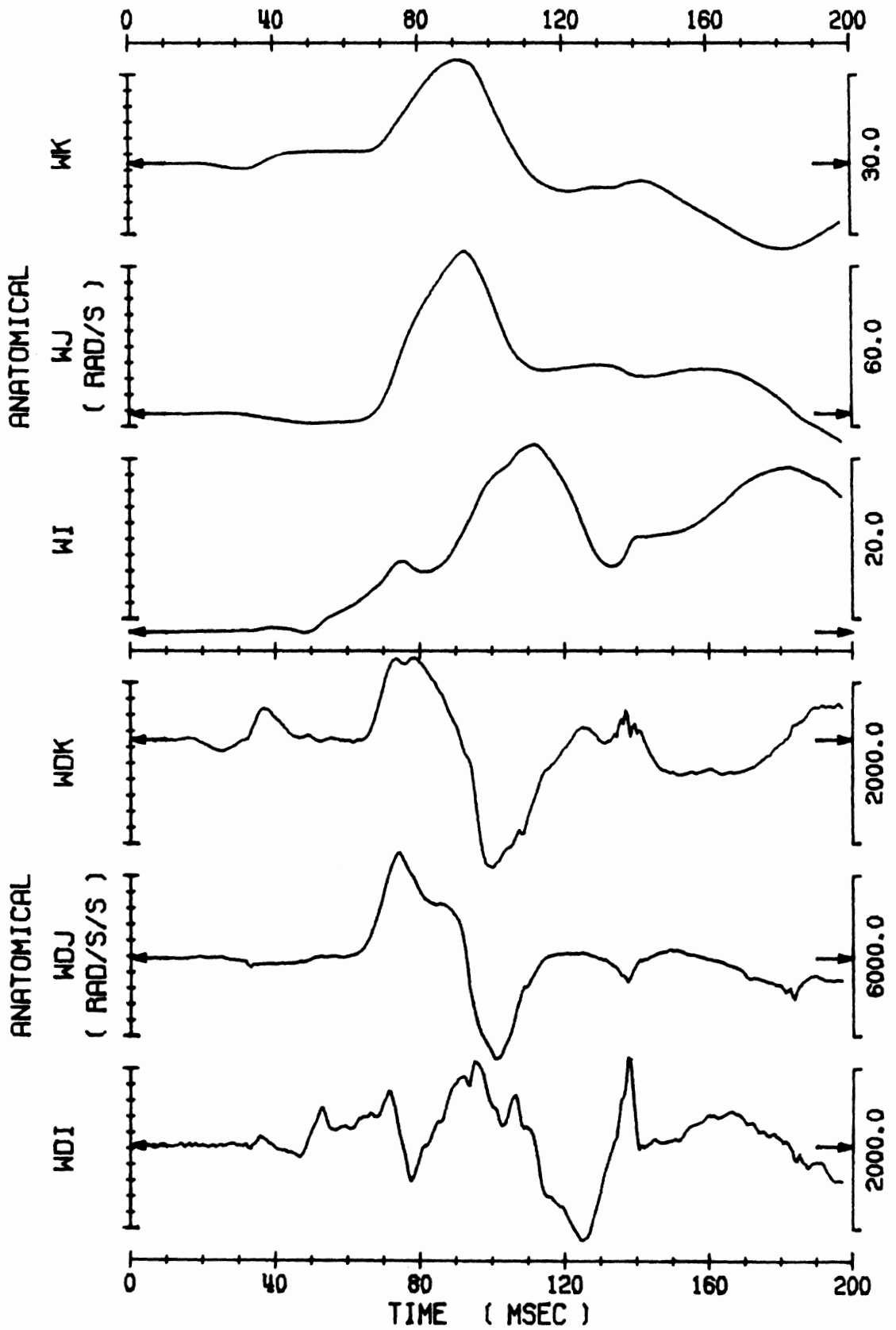
A-938-1: WBR-9



SLED DECELERATION

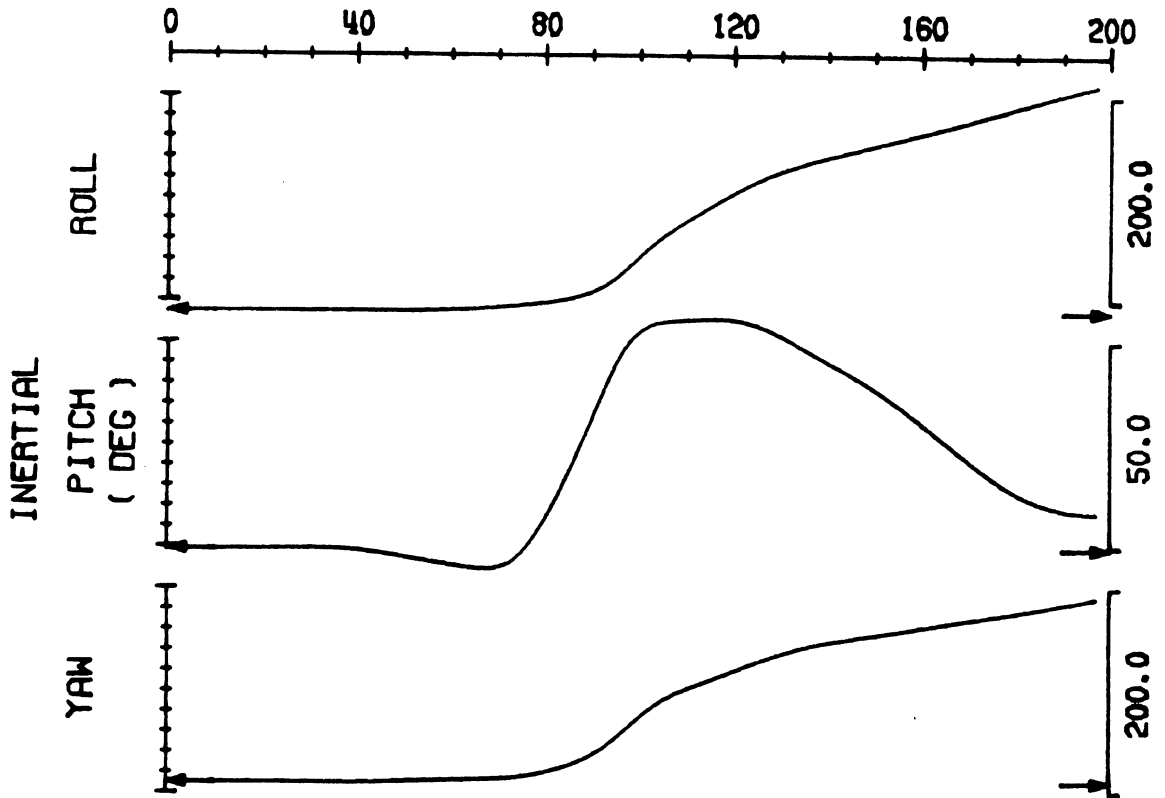
ANG VELOCITIES

ANG ACCELERATIONS

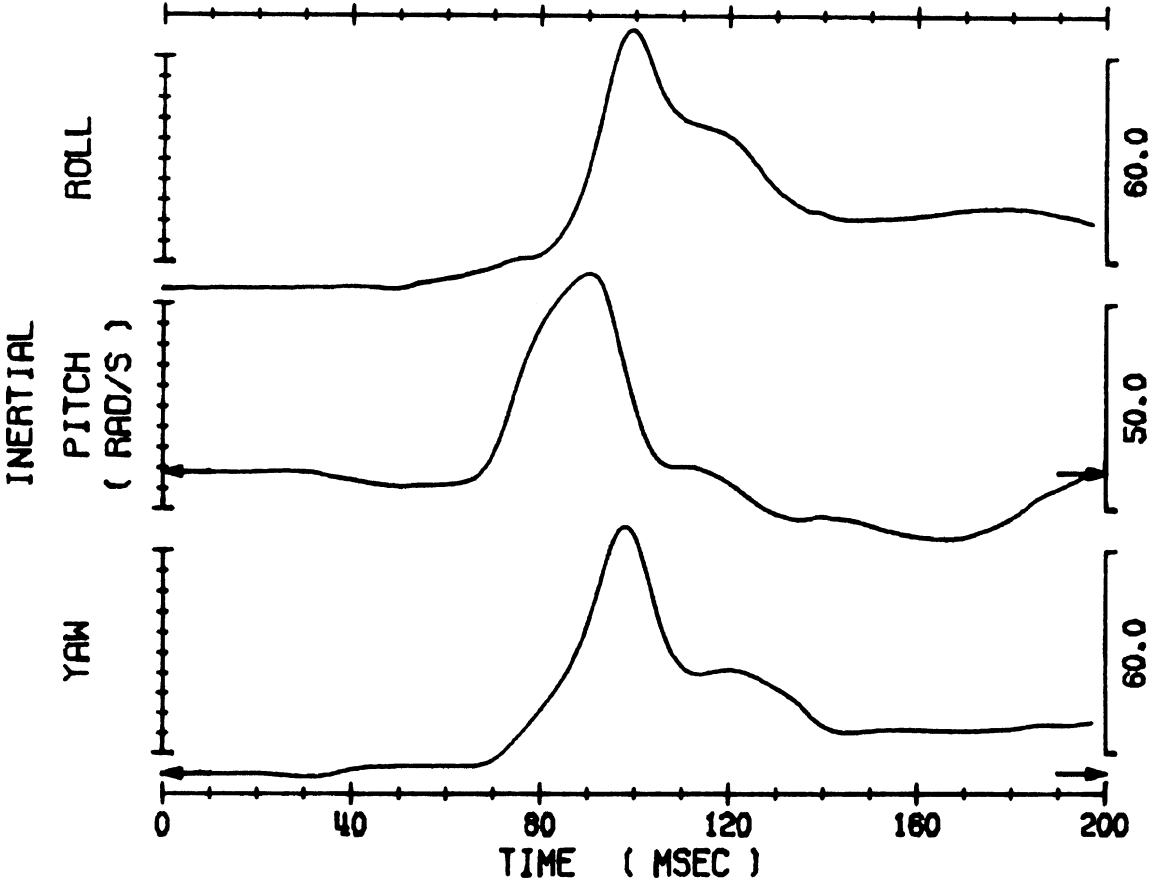


3-D ANGULAR MOTION

EULER ANGLES



EULER RATES

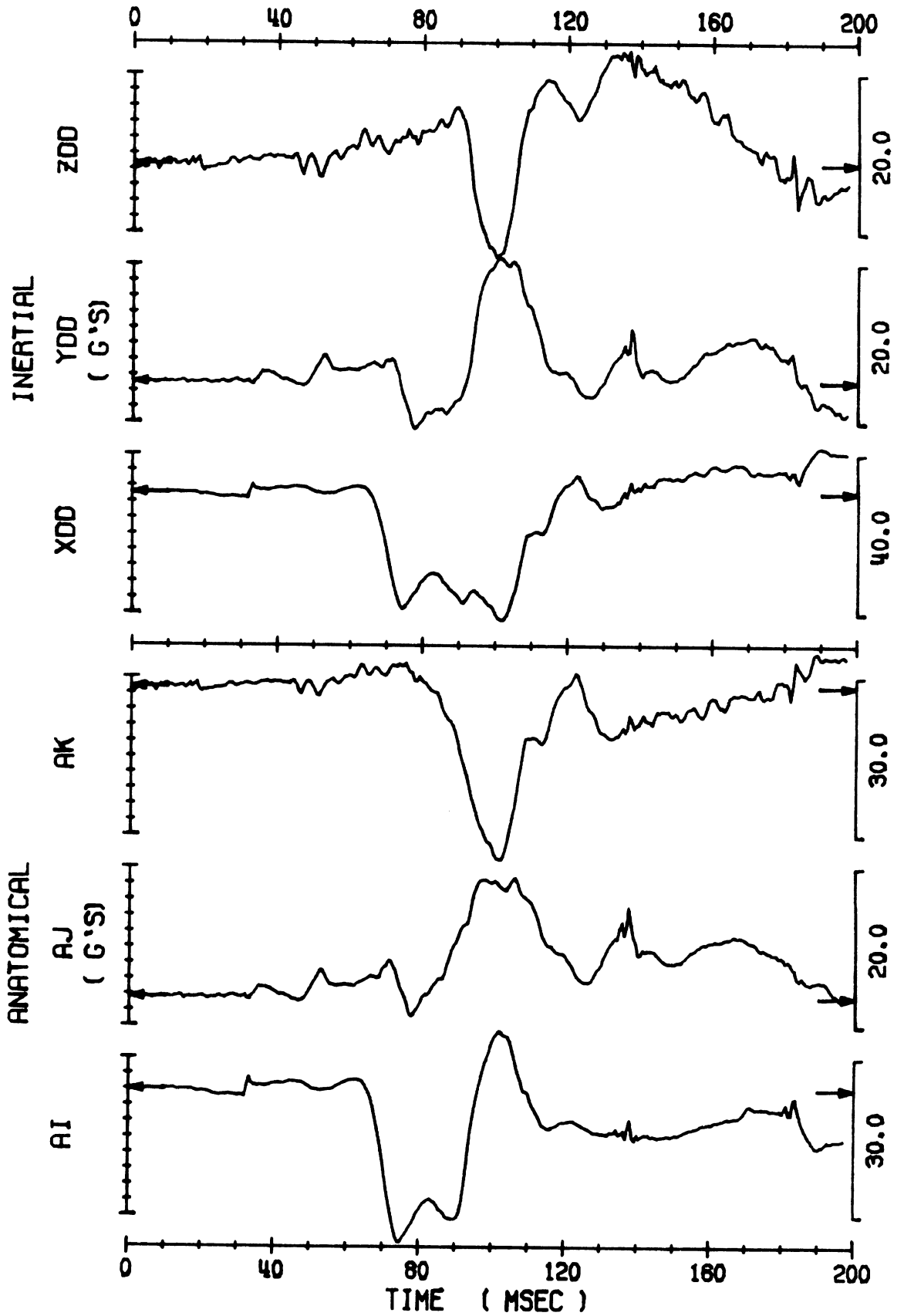


3-D ROTATIONS

ACC OF: ANATOMICAL CENTER GSI= 190, HIC= 144

FILE: 141

A-938-1: WBR-9



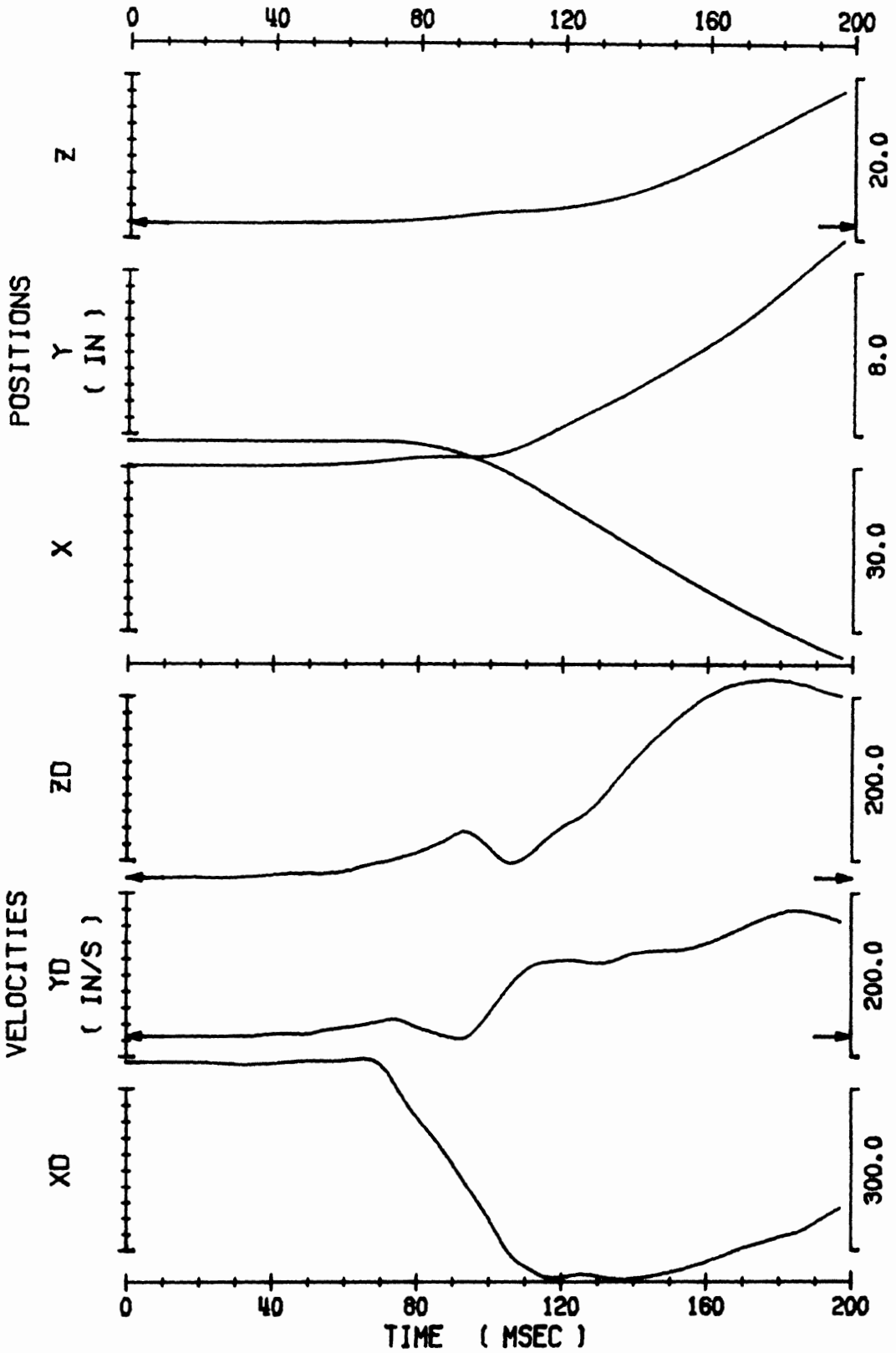
3-D ACCELERATIONS

FILE: 142

A-938-1: WBR-9

ANATOMICAL CENTER

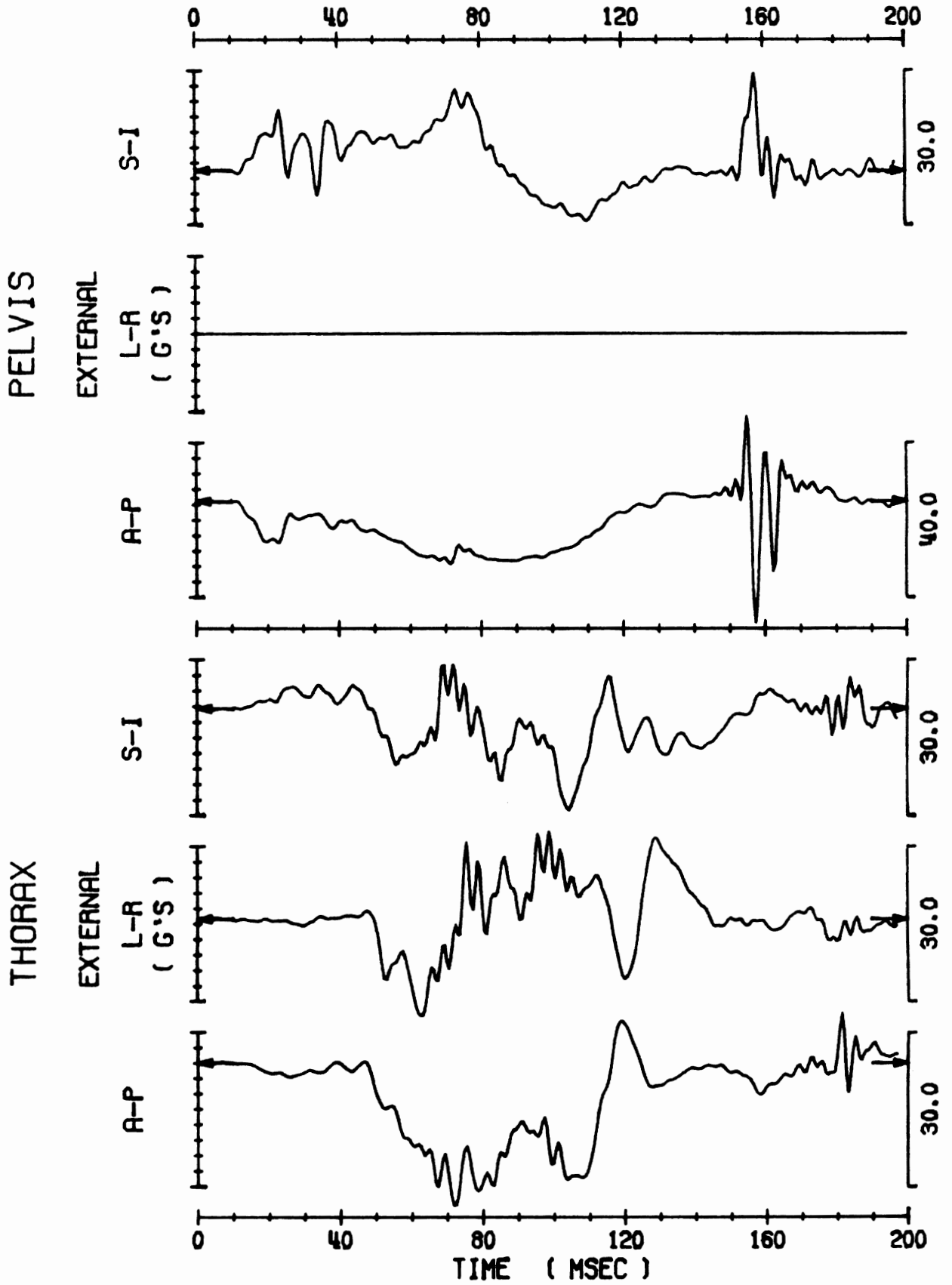
INERTIAL MOTION OF:



3-D TRANSLATIONS

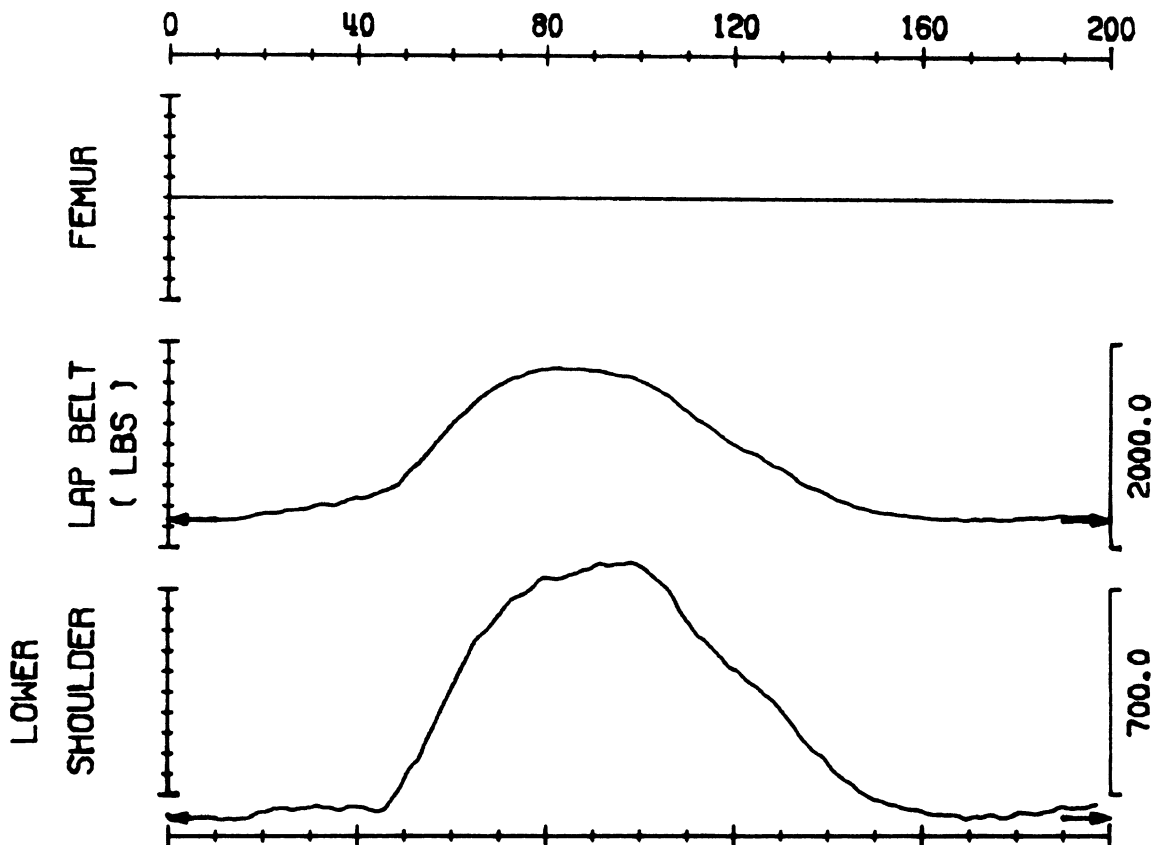
FILE: 143

A-938-2: WBR-9

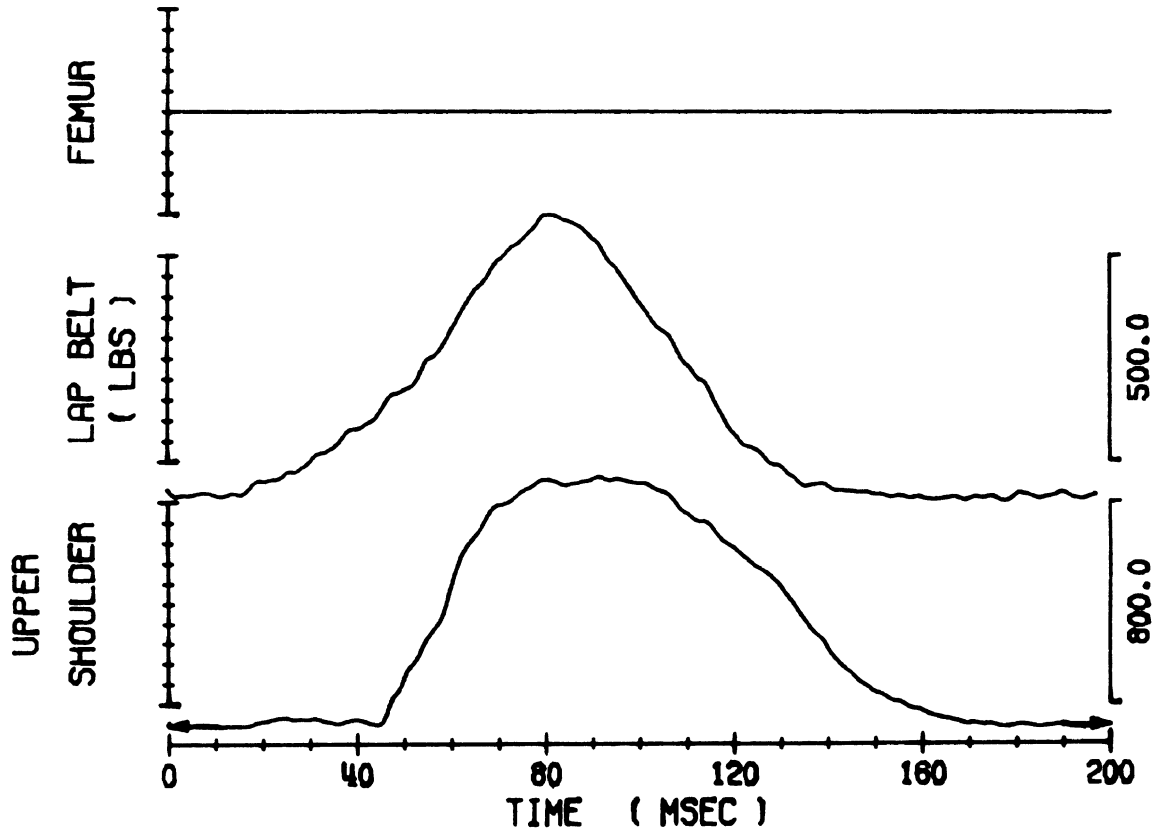


MEASURED ACCELERATIONS

RIGHT SIDE



LEFT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: 76B001
=====

SUBJECT: WBR-10

17. G-LEVEL (est.)
MS LONG
30. MPH DV (est.)

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1536. | 3663. | 6942. | 2865. | 0. | 0. |
| (LBS) @ (MS) | 75.3 | 94.0 | 54.6 | 73.4 | 0.0 | 0.0 |

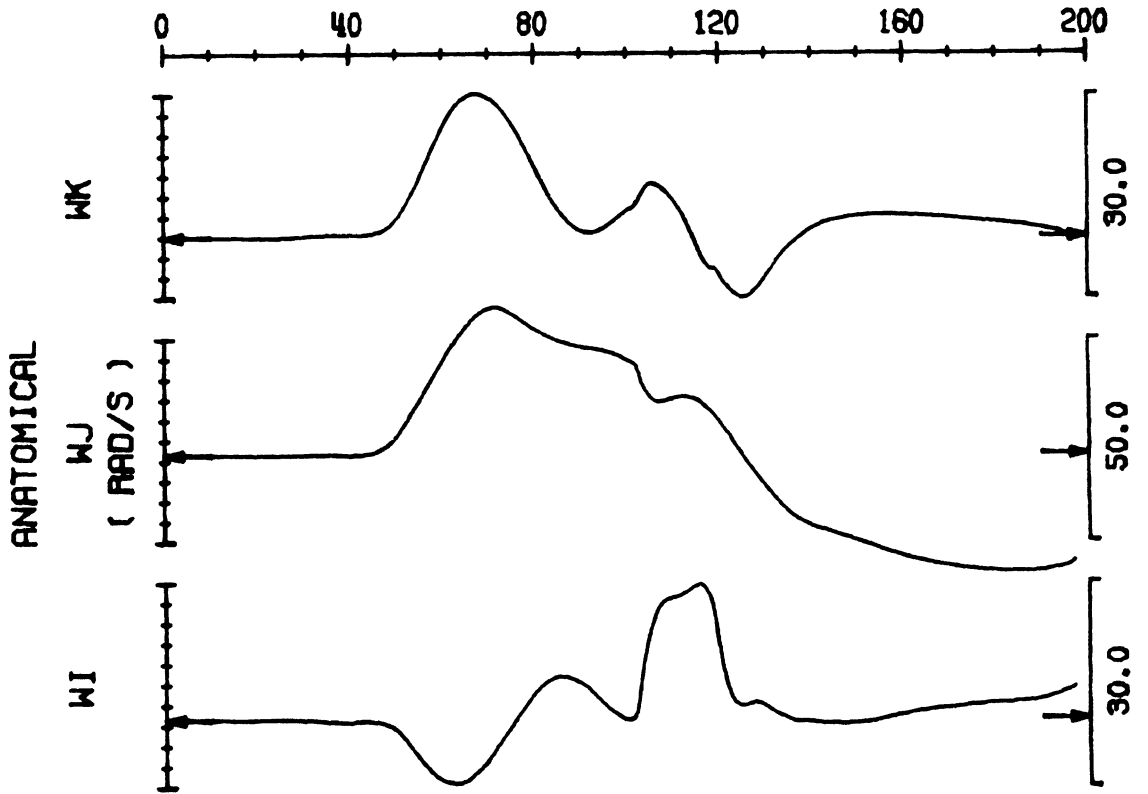
| | RESULTANT | (A-P) | | (L-R) | | (S-I) | |
|----------------|-----------|--------|-------|--------|-------|--------|-------|
| | PEAK | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 46. | -5. | 37. | -24. | 19. | -14. | 4. |
| (G'S) @ | 100.3 | 97.2 | 60.8 | 94.8 | 77.0 | 70.6 | 100.7 |
| GSI= | 410 | | | | | | |
| EX PELVIS ACC: | 0. | -30. | 14. | 0. | 0. | -3. | 44. |
| (G'S) @ | 0.0 | 73.0 | 91.6 | 0.0 | 0.0 | 92.0 | 69.8 |
| | | | | | | | |
| HEAD ANG ACC : | 6425. | -3010. | 2793. | -2107. | 1985. | -1342. | 1432. |
| (RAD/S/S) @ | 96.5 | 114.0 | 98.5 | 97.2 | 51.7 | 73.8 | 50.4 |
| HEAD ANG VEL : | 42.0 | -9.0 | 19.8 | -29.0 | 35.8 | -7.6 | 20.1 |
| (RAD/S) @ | 64.0 | 56.2 | 106.2 | 178.6 | 66.5 | 119.8 | 62.0 |
| EULER ANGLES : | | | 157.6 | | 85.6 | | 150.6 |
| (DEGREES) @ | | | 122.0 | | 131.4 | | 122.1 |
| | | | | | | | |
| HEAD C.G. ACC: | 62. | -49. | -2. | -13. | 44. | -31. | 2. |
| (G'S) @ | 97.7 | 99.8 | 161.4 | 98.0 | 114.9 | 71.5 | 131.3 |
| HEAD C.G. HIC= | 659 | | | | | | |
| HEAD C.G. VEL: | 860. | -622. | -2. | -253. | -63. | -66. | 520. |
| (IN/S) @ | 184.6 | 99.0 | 29.0 | 104.1 | 157.7 | 68.9 | 159.0 |
| HEAD C.G. DIS: | | | -11.3 | | -2.7 | | -1.9 |
| (IN) @ | | | 84.0 | | 84.0 | | 84.2 |

C-110

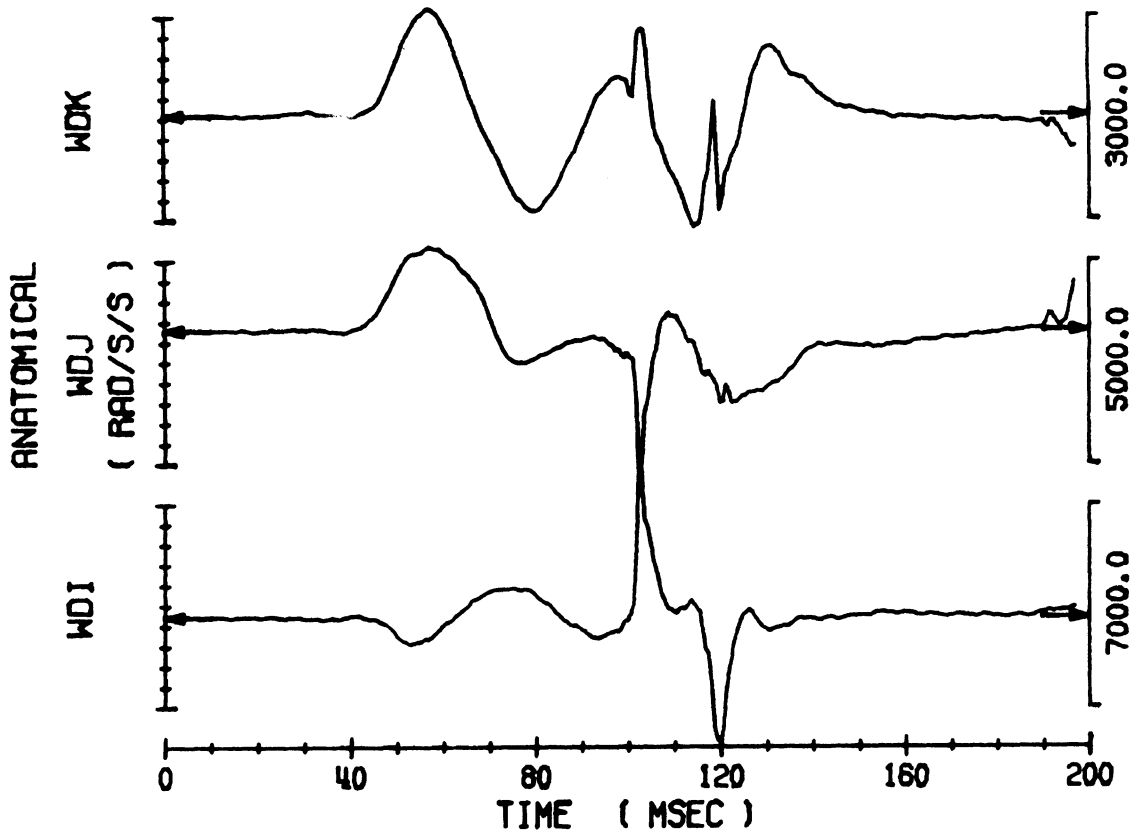
FILE: 148

76B001-1: WBR-10

ANG VELOCITIES

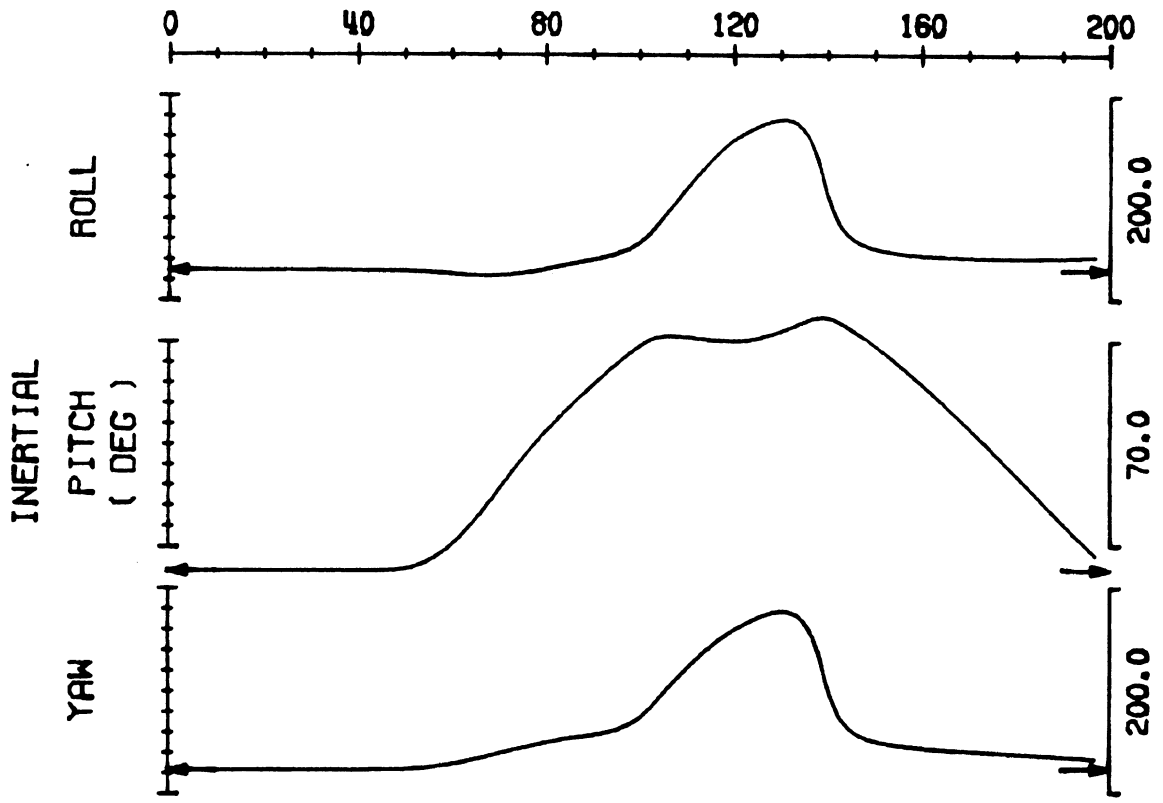


ANG ACCELERATIONS

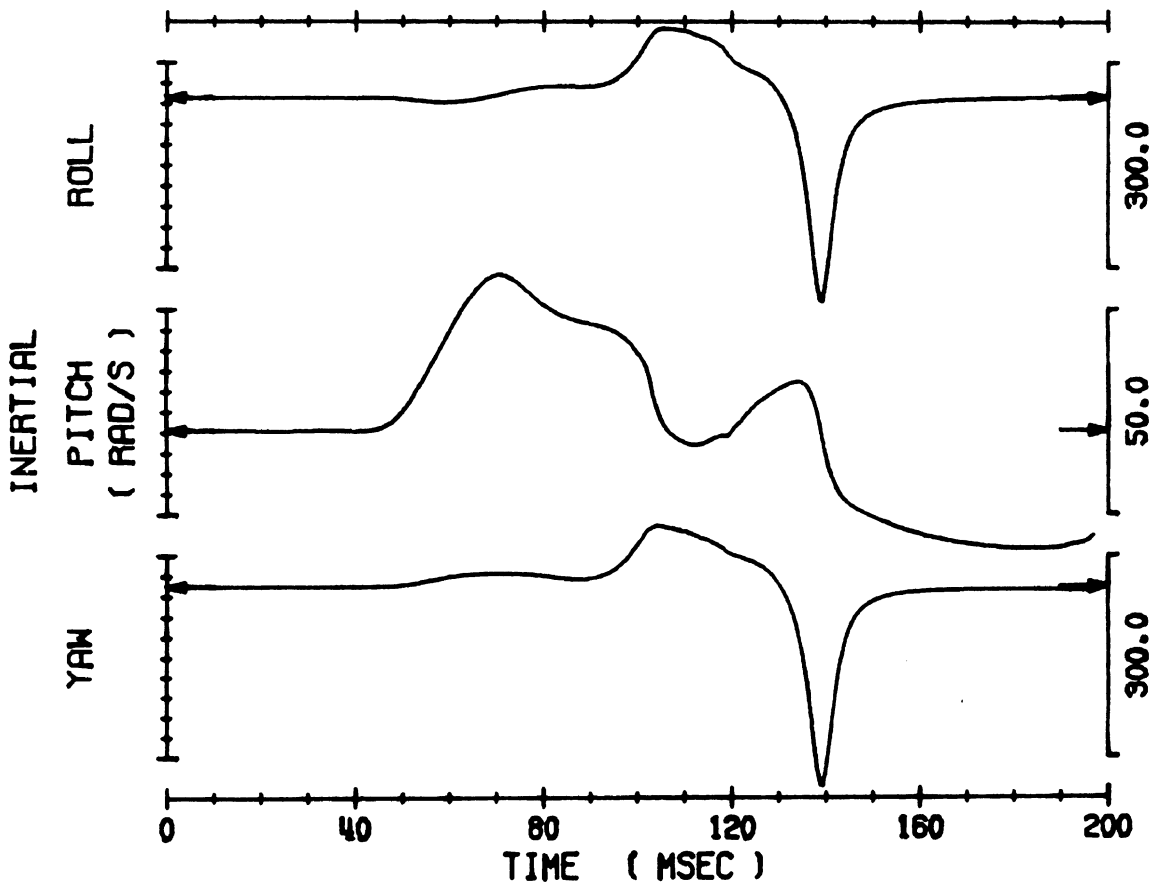


3-D ANGULAR MOTION

EULER ANGLES



EULER RATES

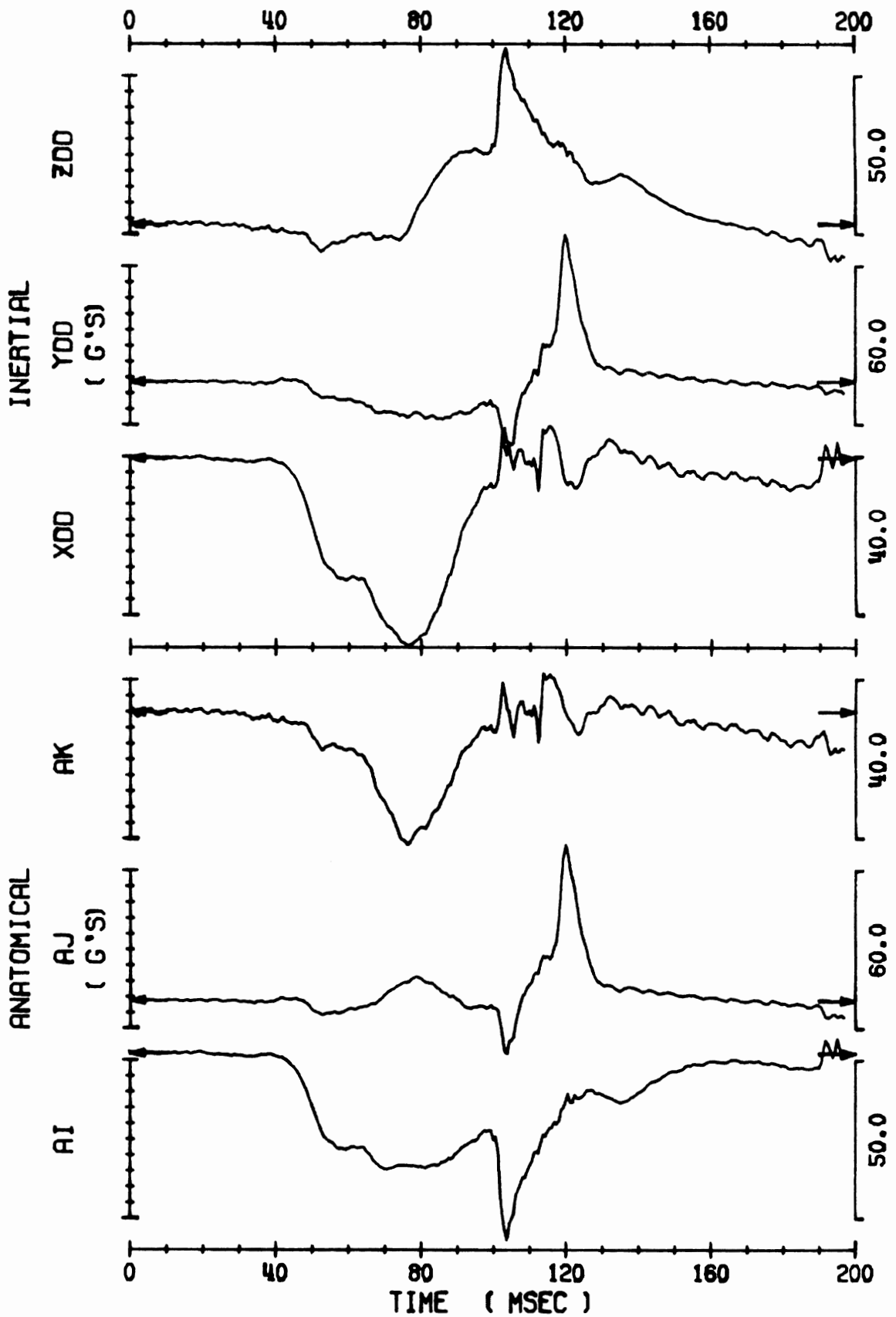


3-D ROTATIONS

ACC OF: ANATOMICAL CENTER GSI= 762, HIC= 659

FILE: 150

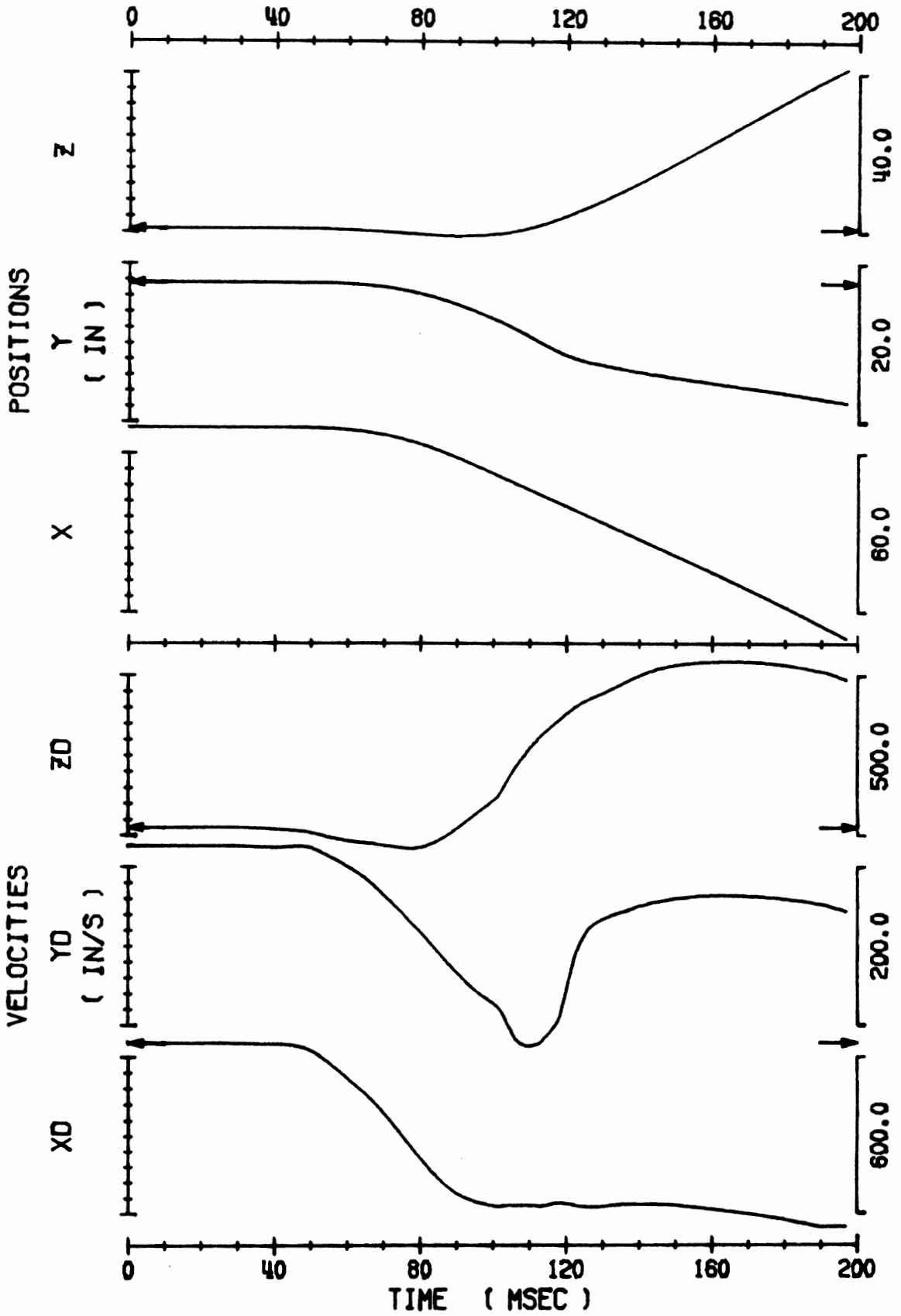
76B001-1: WBR-10



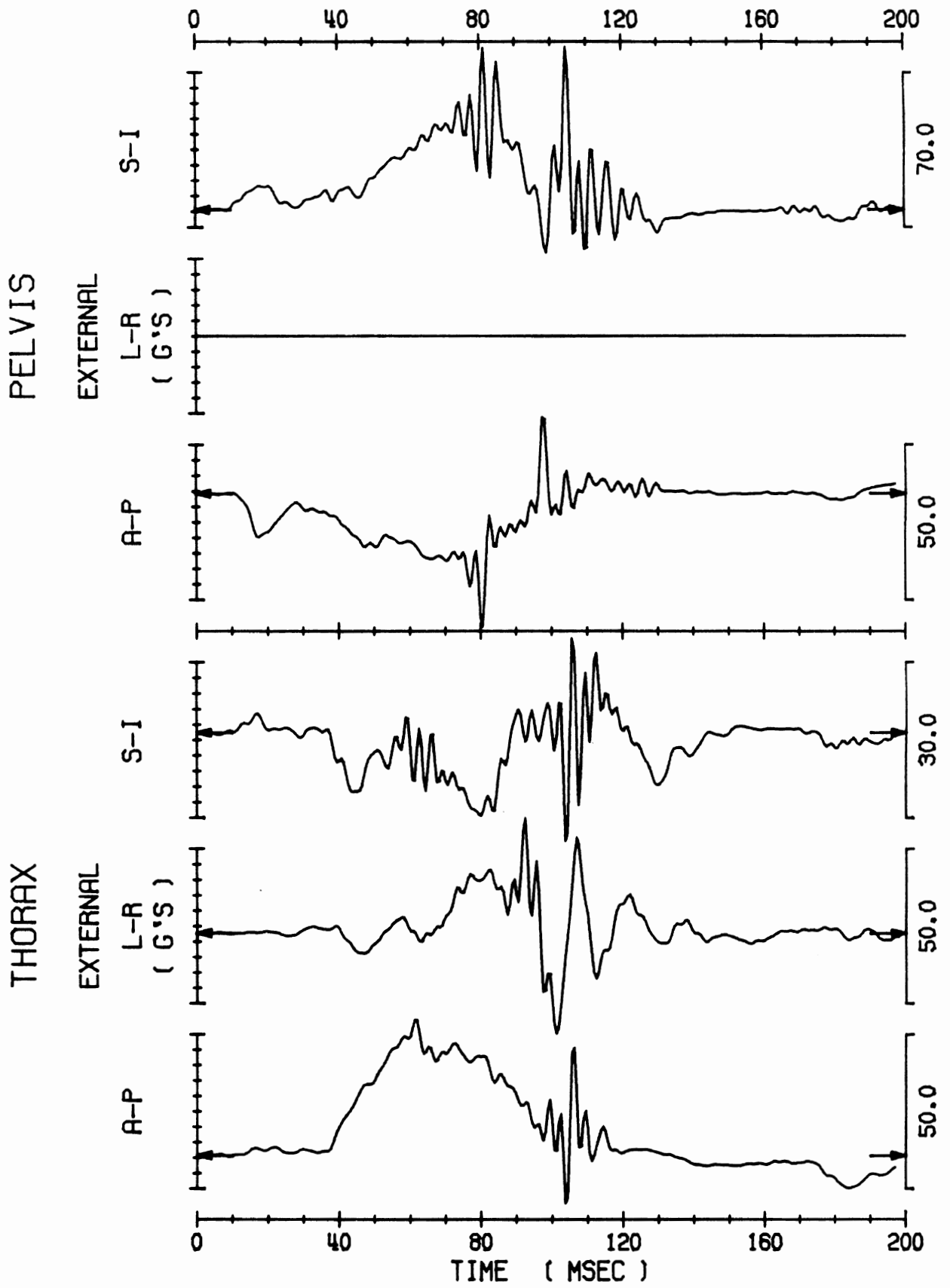
3-D ACCELERATIONS

ANATOMICAL CENTER

INERTIAL MOTION OF:

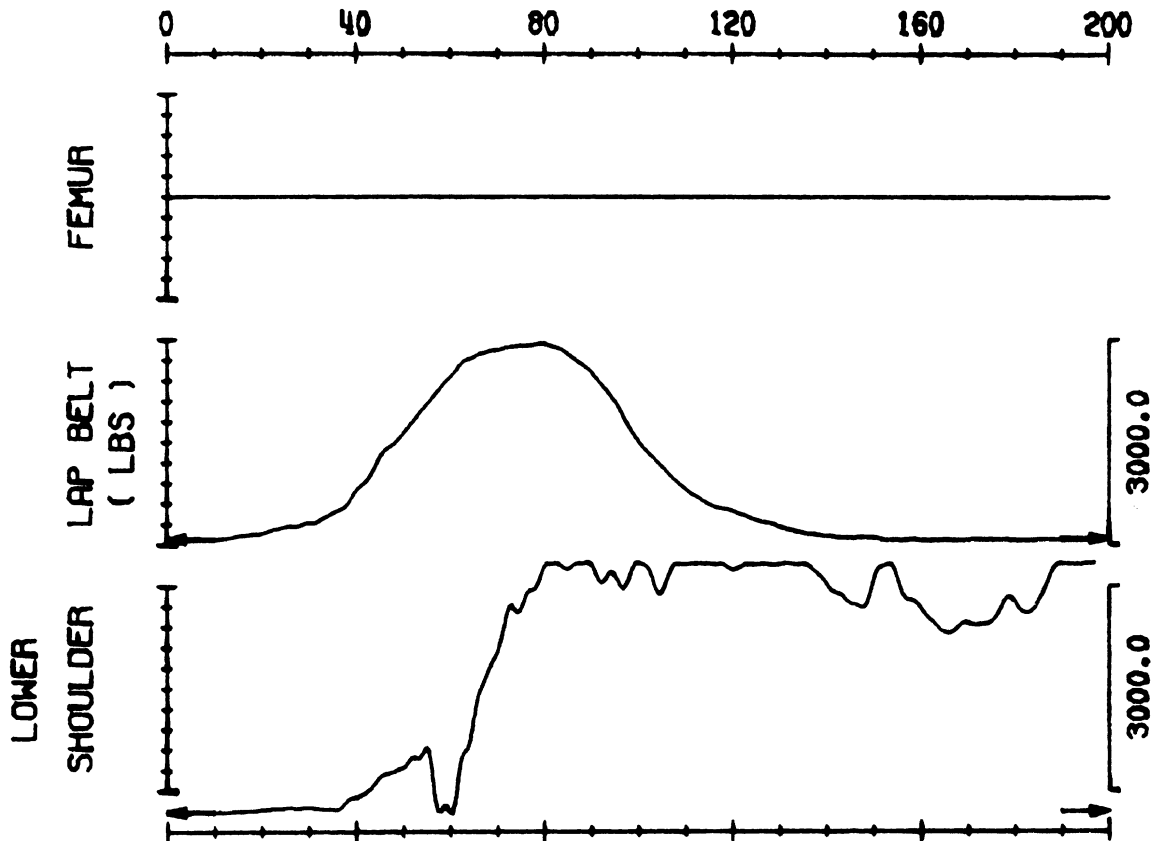


3-D TRANSLATIONS

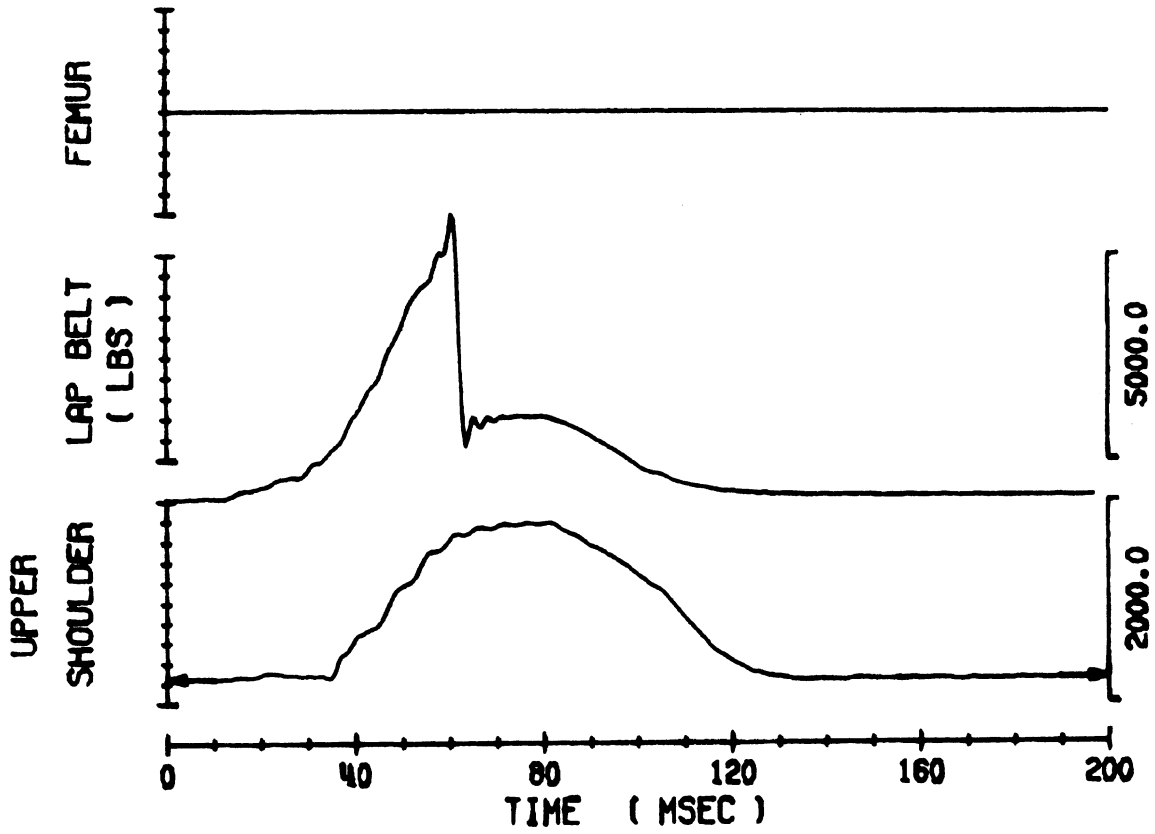


MEASURED ACCELERATIONS

RIGHT SIDE



LEFT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: 76B002
=====

SUBJECT: WBR-11

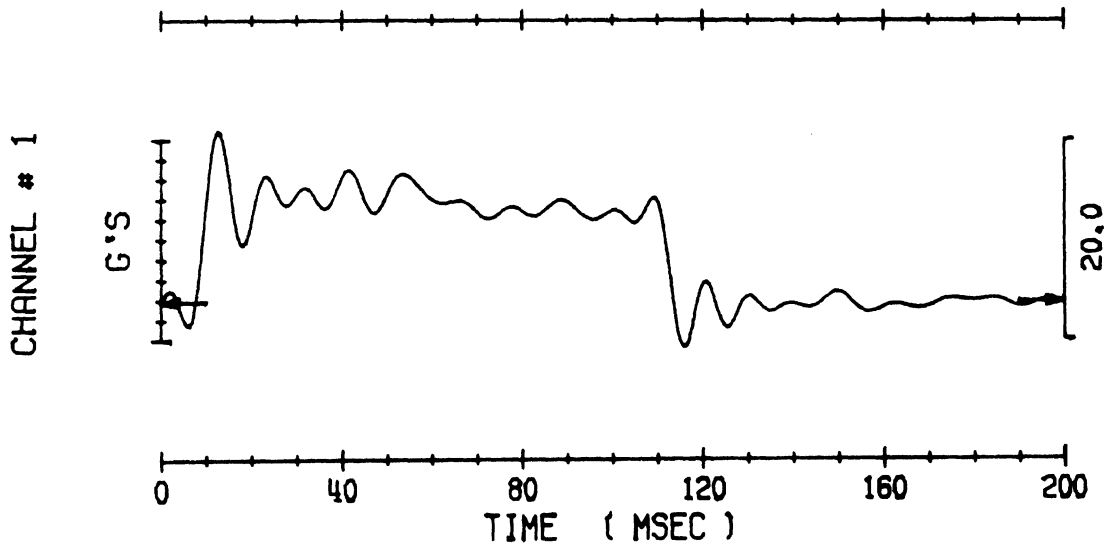
10.2 G-LEVEL
106. MS LONG
22.1 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 891. | 688. | 664. | 1430. | 0. | 0. |
| (LBS) @ (MS) | 84.8 | 83.5 | 65.4 | 89.8 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|--------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 24. | -17. | 1. | -5. | 7. | -5. | 6. |
| (G'S) @ | 89.1 | 94.6 | 147.3 | 147.3 | 125.8 | 128.9 | 85.8 |
| GSI= | 76 | | | | | | |
| EX PELVIS ACC: | 0. | -13. | 2. | 0. | 0. | -1. | 13. |
| (G'S) @ | 0.0 | 75.3 | 147.3 | 0.0 | 0.0 | 151.9 | 58.5 |
| | | | | | | | |
| HEAD ANG ACC : | 2908. | -78. | 698. | -1644. | 2029. | -570. | 489. |
| (RAD/S/S) @ | 108.5 | 97.0 | 86.0 | 94.0 | 64.0 | 96.3 | 70.0 |
| HEAD ANG VEL : | 43.4 | -0.2 | 13.8 | -10.5 | 41.4 | -2.5 | 9.5 |
| (RAD/S) @ | 83.5 | 37.3 | 167.3 | 167.3 | 82.7 | 45.9 | 85.8 |
| EULER ANGLES : | | | 90.1 | | 70.6 | | 110.3 |
| (DEGREES) @ | | | 129.0 | | 114.3 | | 133.6 |
| | | | | | | | |
| HEAD C.G. ACC: | 39. | -25. | -5. | -2. | 9. | -32. | 2. |
| (G'S) @ | 111.0 | 114.7 | 92.2 | 134.9 | 94.5 | 92.7 | 131.3 |
| HEAD C.G. HIC= | 183 | | | | | | |
| HEAD C.G. VEL: | 562. | -486. | -10. | -0. | 136. | -77. | 295. |
| (IN/S) @ | 189.2 | 124.4 | 37.3 | 37.3 | 113.1 | 96.2 | 177.3 |
| HEAD C.G. DIS: | | | -13.5 | | 3.5 | | -2.2 |
| (IN) @ | | | 112.3 | | 112.3 | | 111.9 |

FILE: 170

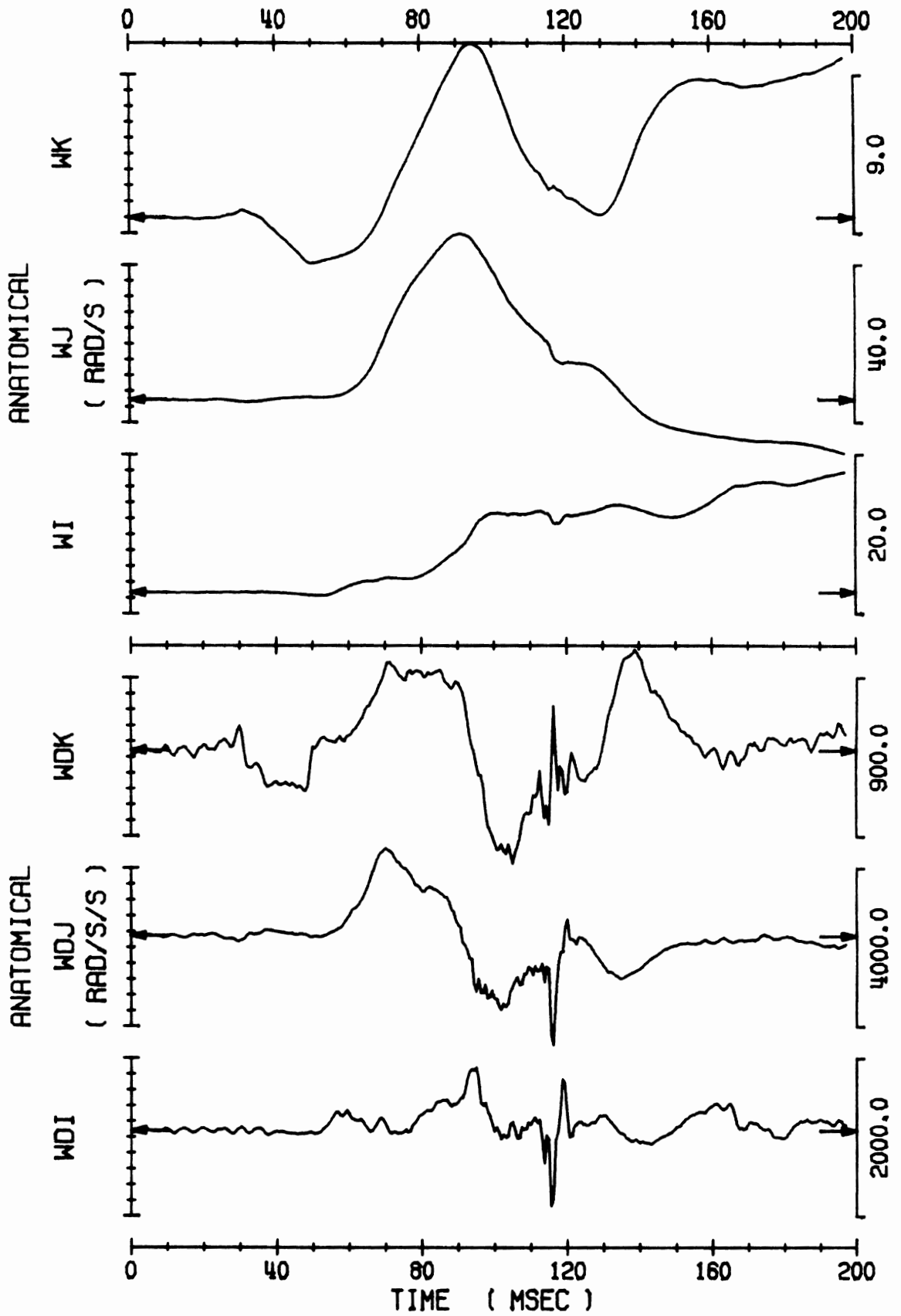
76B002-1: WBR-11



SLED DECELERATION

ANG VELOCITIES

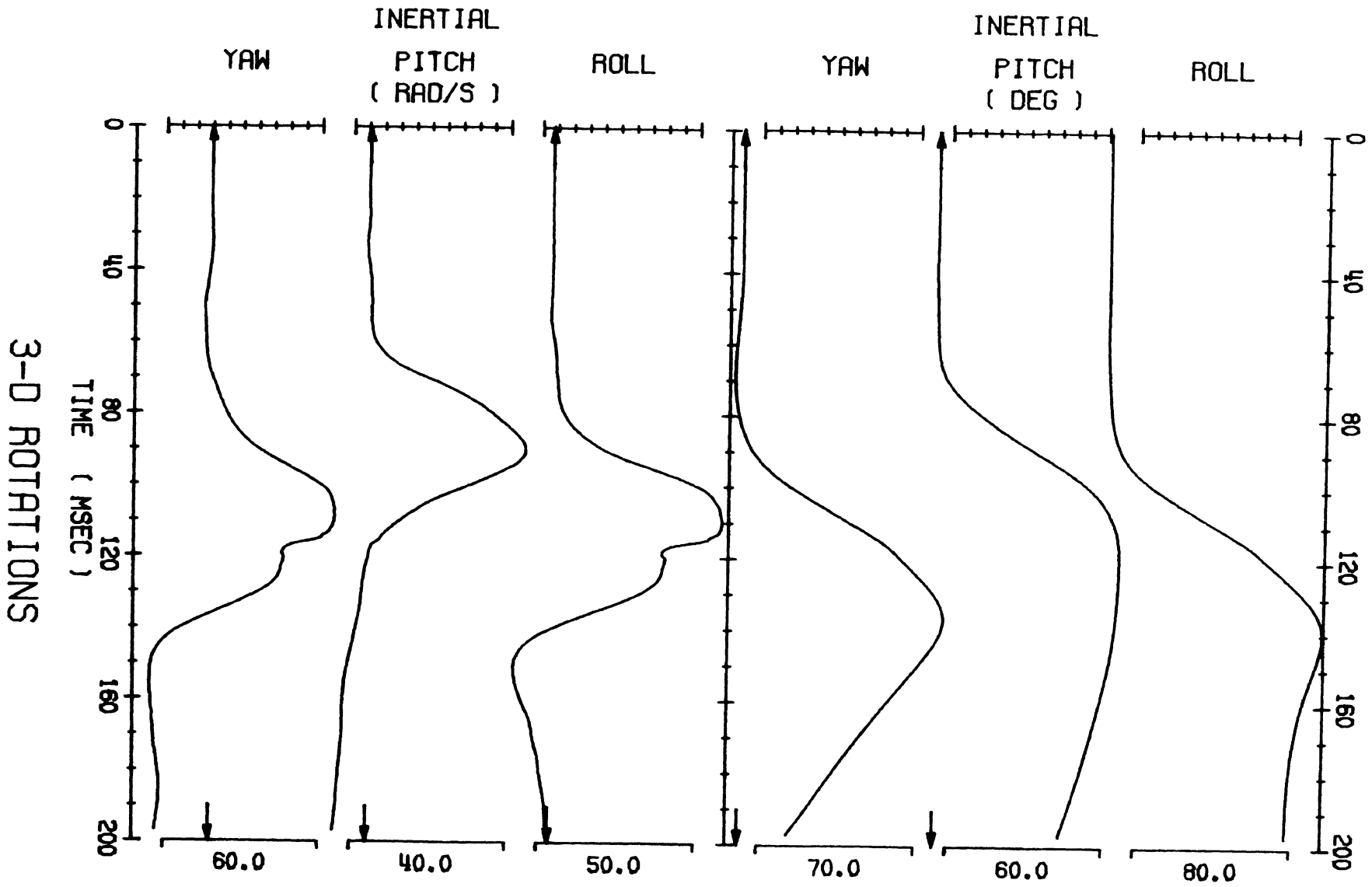
ANG ACCELERATIONS



3-D ANGULAR MOTION

EULER RATES

EULER ANGLES



FILE: 167

76B002-1: MBR-11

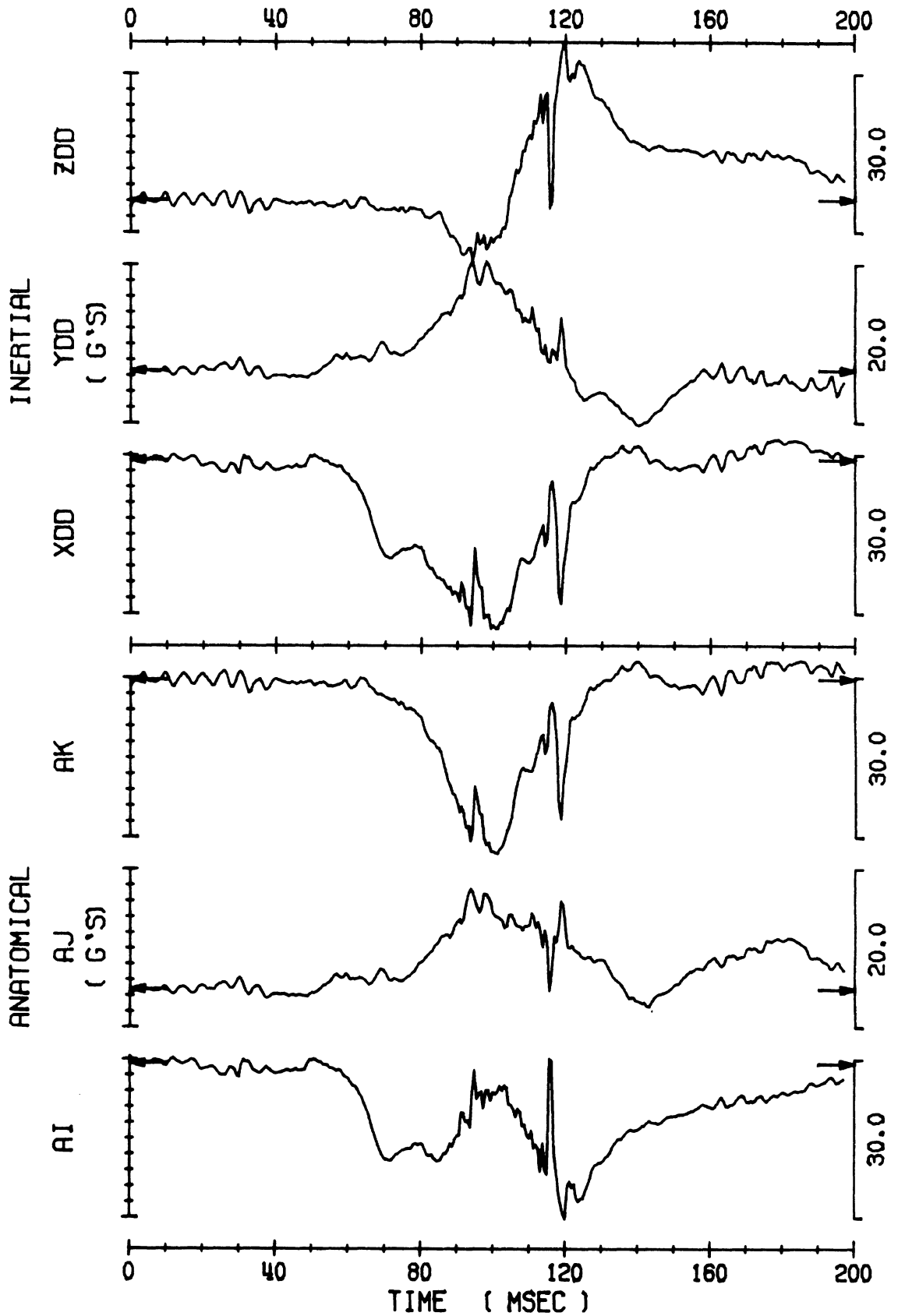
3-D ROTATIONS

C-120

ACC OF: ANATOMICAL CENTER GSI= 227, HIC= 183

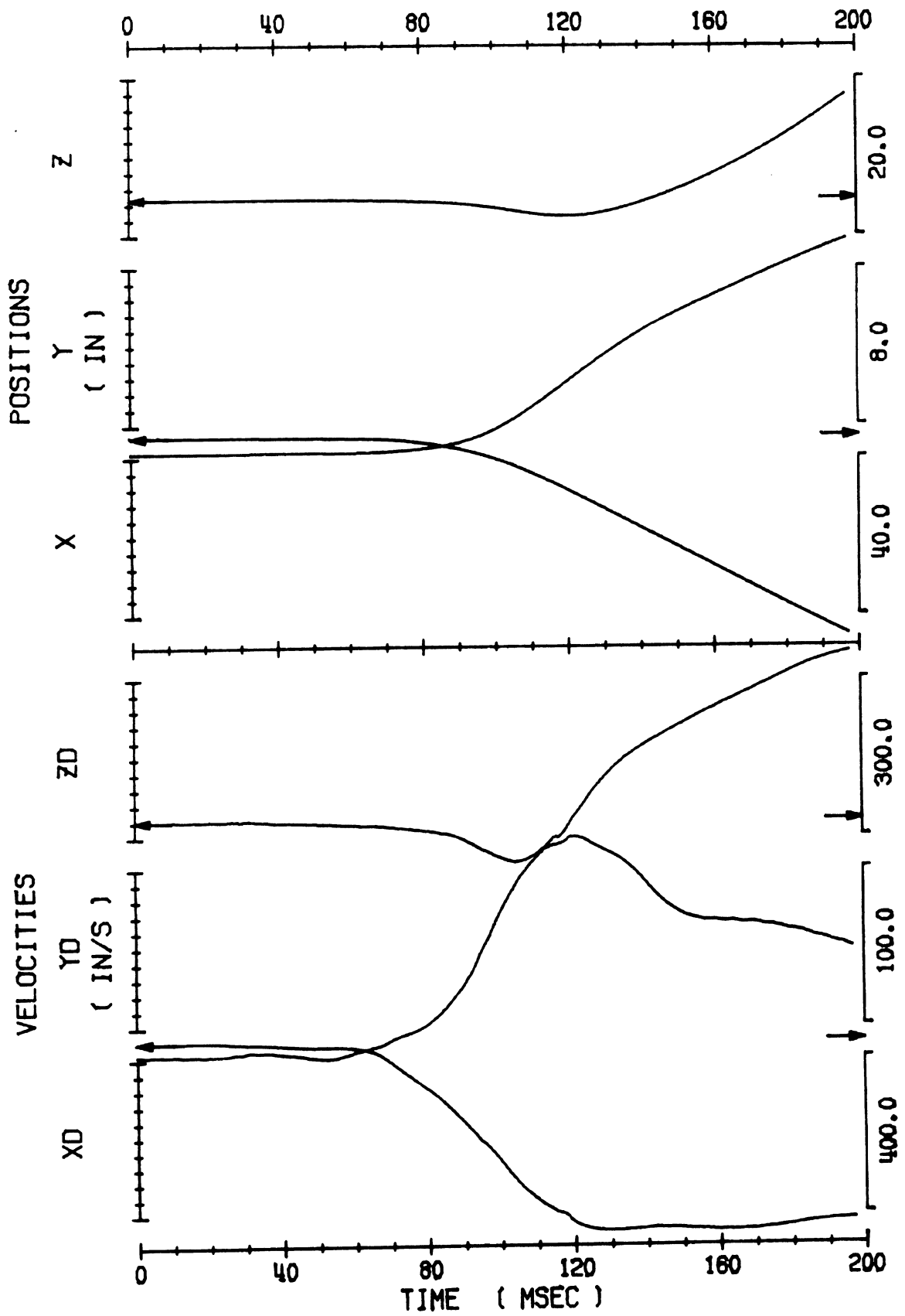
FILE: 168

76B002-1: WBR-11



3-D ACCELERATIONS

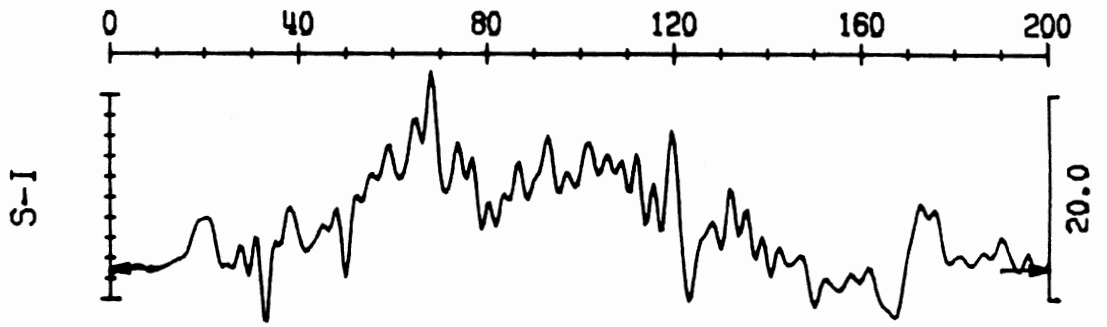
INERTIAL MOTION OF:
ANATOMICAL CENTER



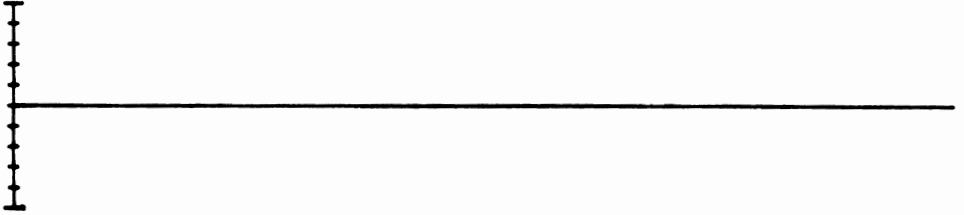
3-D TRANSLATIONS

PELVIS

EXTERNAL



L-R
(G'S)



A-P



THORAX

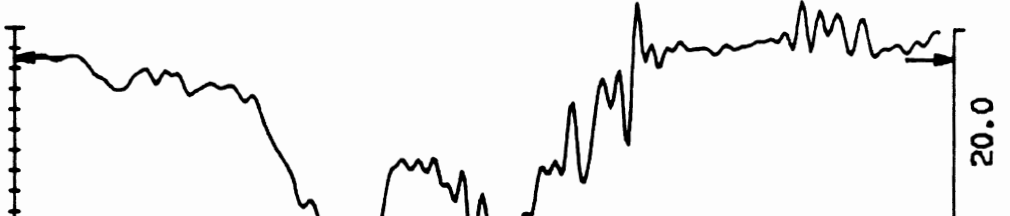
EXTERNAL



L-R
(G'S)



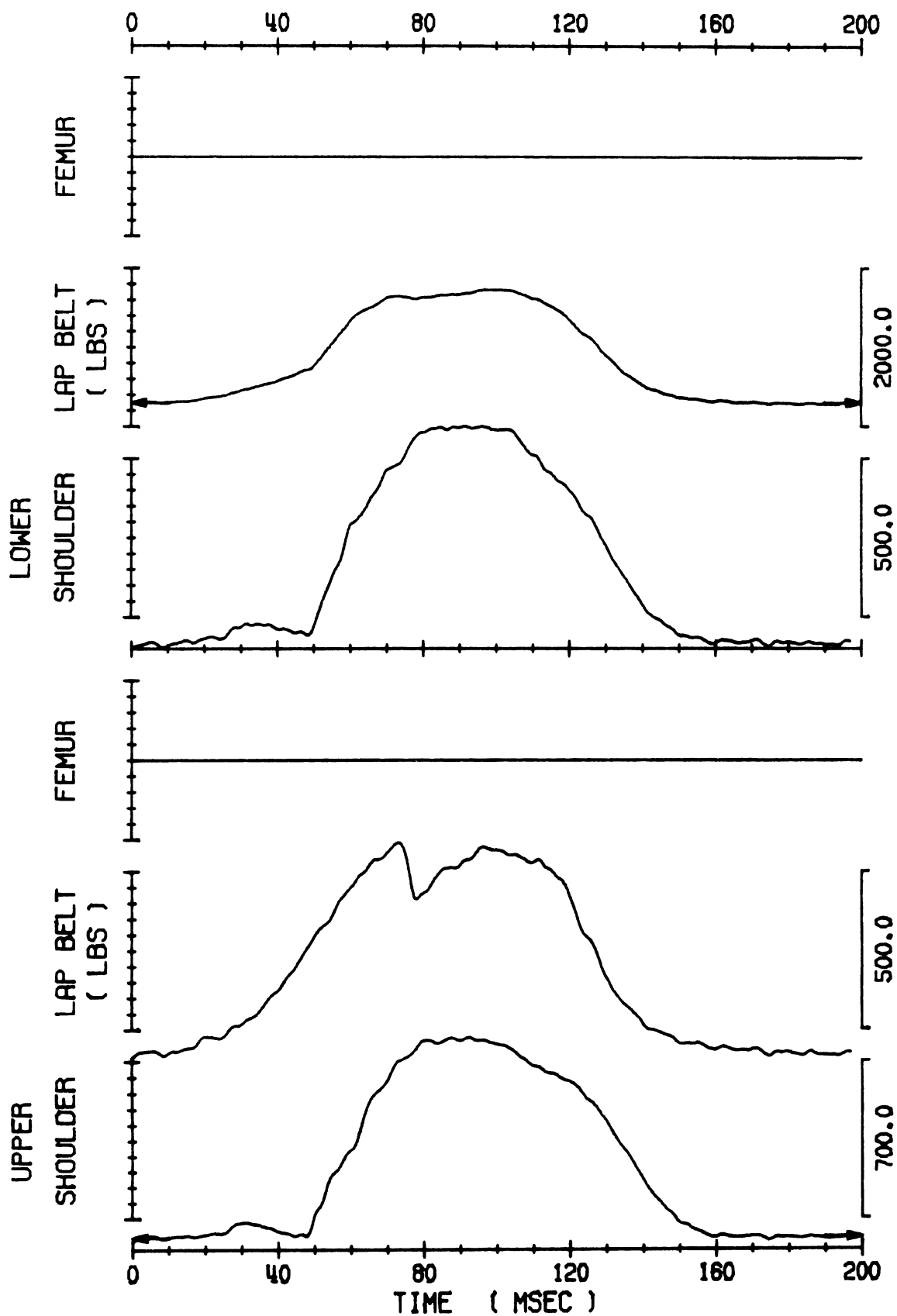
A-P



0 40 80 120 160 200
TIME (MSEC)

MEASURED ACCELERATIONS

RIGHT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: 76B003
=====

SUBJECT: WBR-12

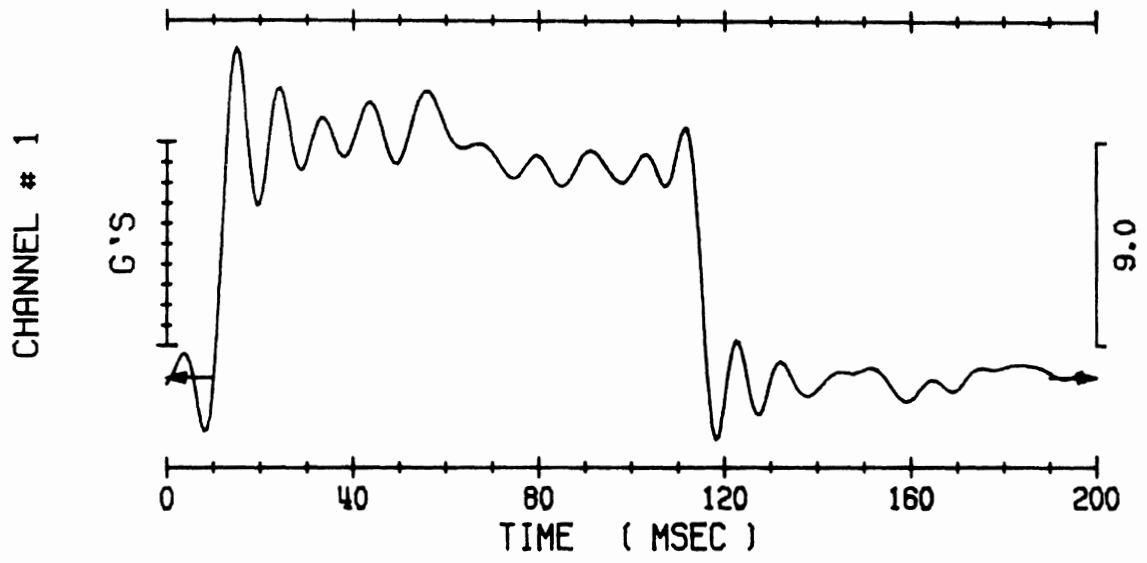
10.2 G-LEVEL
107. MS LONG
22.8 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1060. | 840. | 915. | 1683. | 0. | 0. |
| (LBS) @ (MS) | 83.5 | 79.8 | 72.9 | 77.3 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 79. | -30. | 9. | -52. | 72. | -1. | 11. |
| (G'S) @ | 71.0 | 72.4 | 165.3 | 156.8 | 65.2 | 158.6 | 58.0 |
| GSI= | 2226 | | | | | | |
| EX PELVIS ACC: | 0. | -22. | 7. | 0. | 0. | -4. | 39. |
| (G'S) @ | 0.0 | 137.3 | 167.1 | 0.0 | 0.0 | 164.9 | 137.4 |
| | | | | | | | |
| HEAD ANG ACC : | 2637. | -521. | 158. | -683. | 2483. | -470. | 326. |
| (RAD/S/S) @ | 68.0 | 125.3 | 151.2 | 116.1 | 70.1 | 129.6 | 146.6 |
| HEAD ANG VEL : | 41.7 | -6.2 | 3.6 | 5.4 | 41.4 | -2.7 | 2.4 |
| (RAD/S) @ | 97.9 | 141.5 | 99.4 | 174.8 | 99.5 | 138.6 | 120.8 |
| EULER ANGLES : | | | 91.4 | | 83.9 | | 99.0 |
| (DEGREES) @ | | | 117.3 | | 116.9 | | 117.3 |
| | | | | | | | |
| HEAD C.G. ACC: | 36. | -18. | -7. | 0. | 8. | -27. | -4. |
| (G'S) @ | 86.1 | 131.0 | 109.7 | 165.0 | 124.6 | 89.1 | 142.6 |
| HEAD C.G. HIC= | 168 | | | | | | |
| HEAD C.G. VEL: | 440. | -428. | -1. | -1. | 97. | -145. | 165. |
| (IN/S) @ | 122.9 | 128.5 | 39.5 | 34.8 | 145.9 | 103.0 | 174.8 |
| HEAD C.G. DIS: | | | -19.6 | | 2.5 | | -5.5 |
| (IN) @ | | | 134.8 | | 134.8 | | 134.7 |

FILE: 173

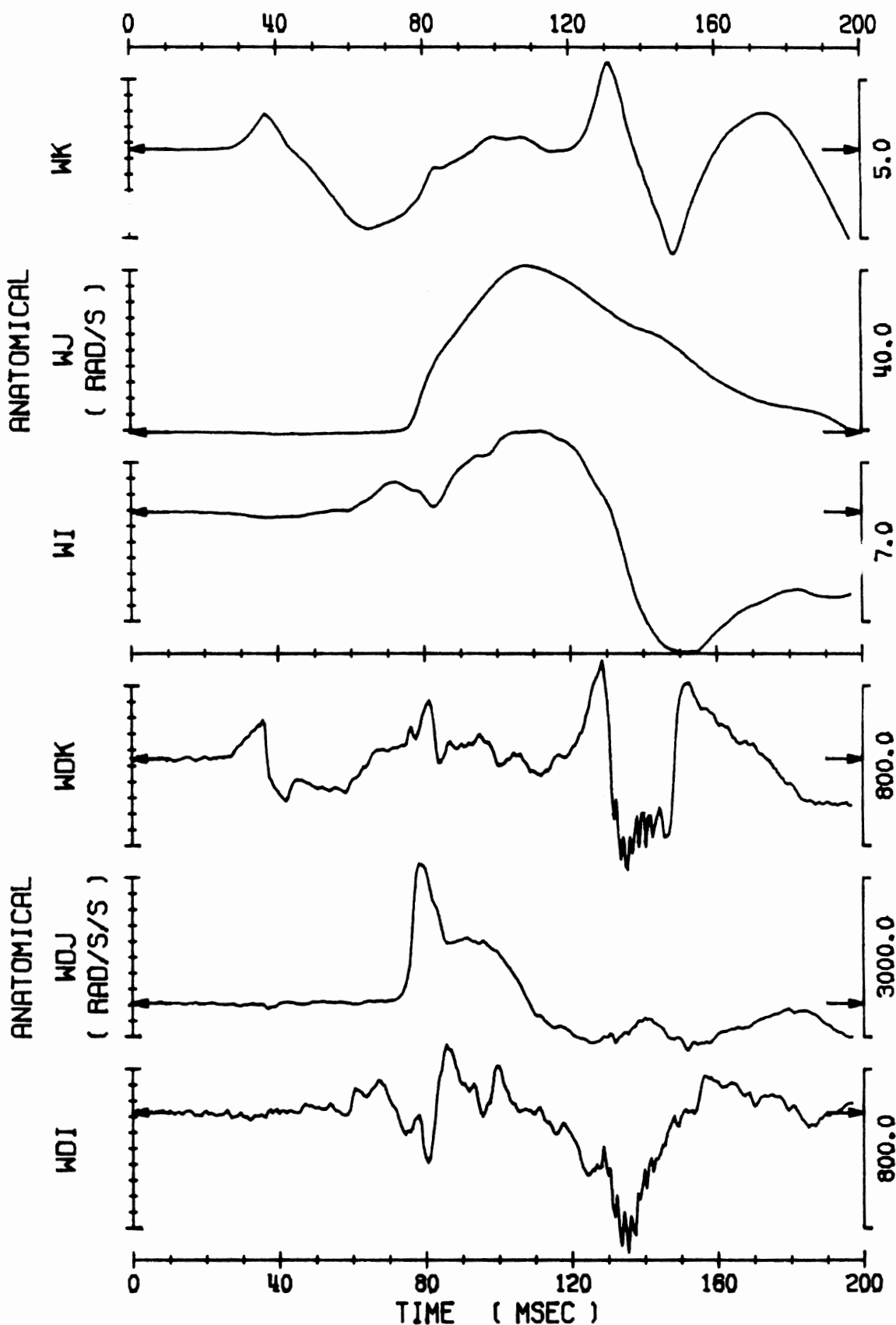
76B003-1: WBR-12



SLED DECELERATION

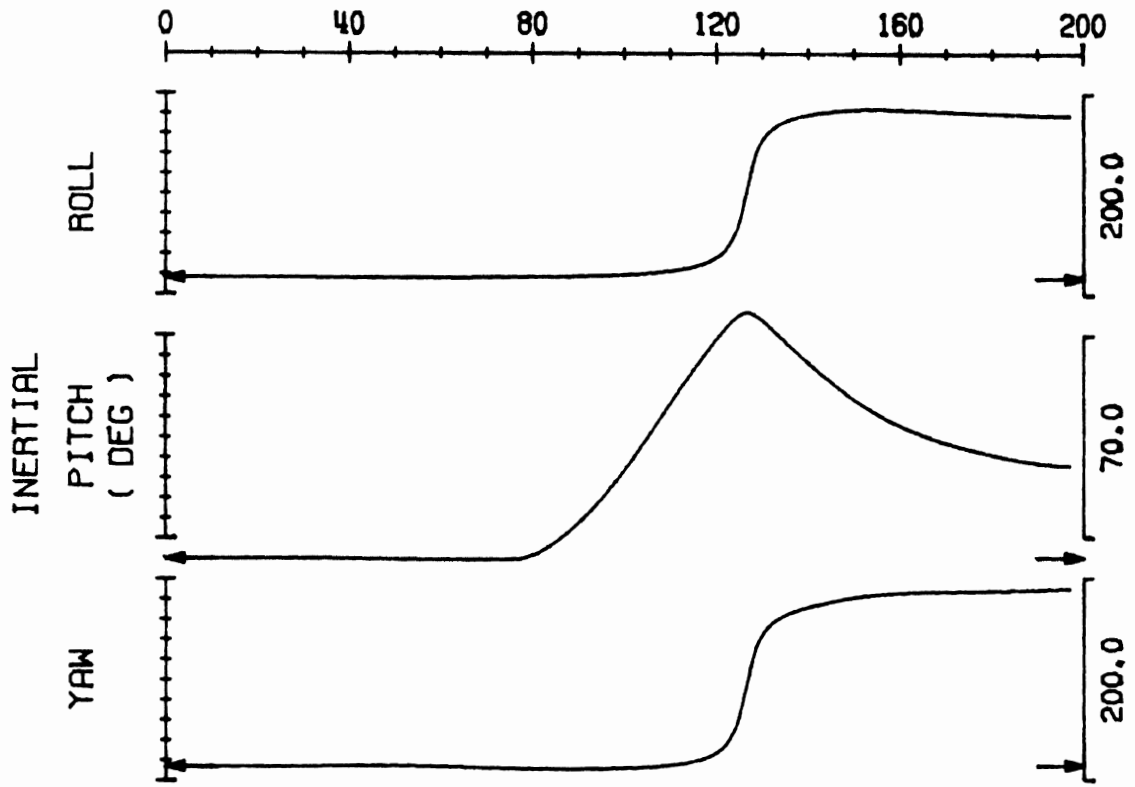
ANG VELOCITIES

ANG ACCELERATIONS

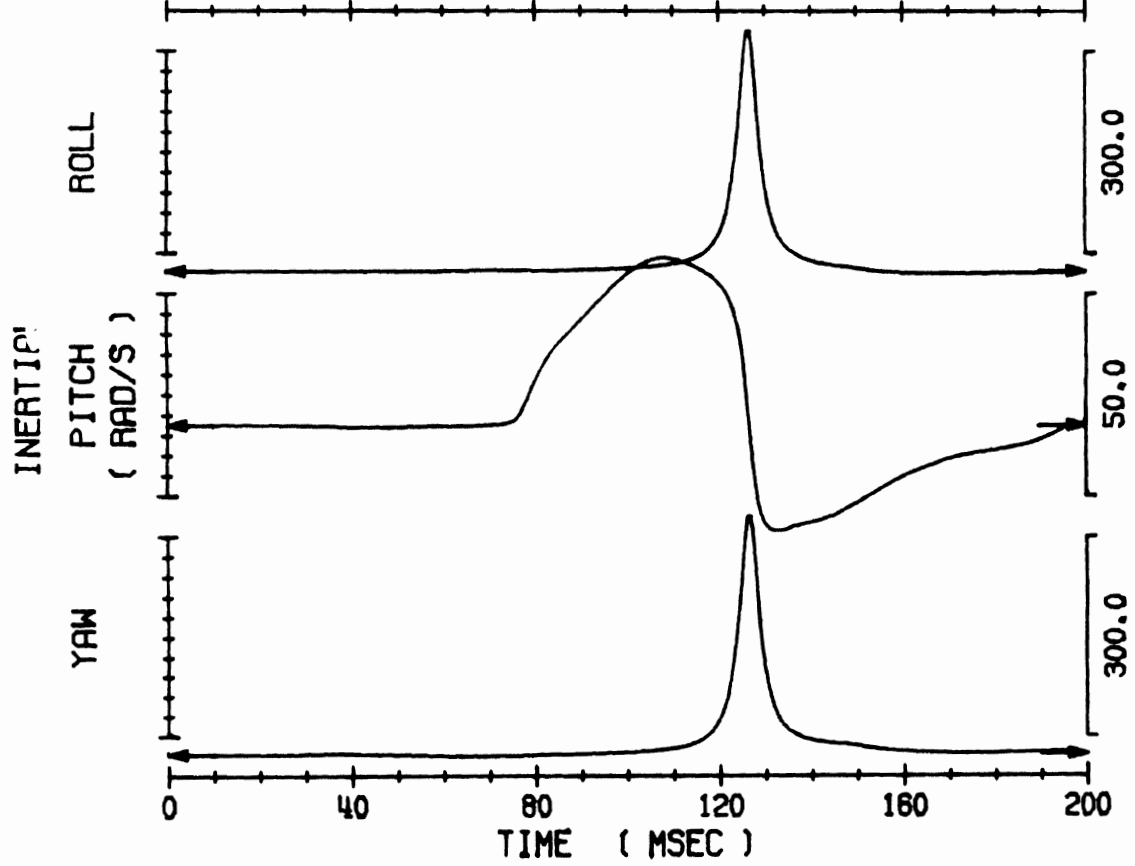


3-D ANGULAR MOTION

EULER ANGLES



EULER RATES

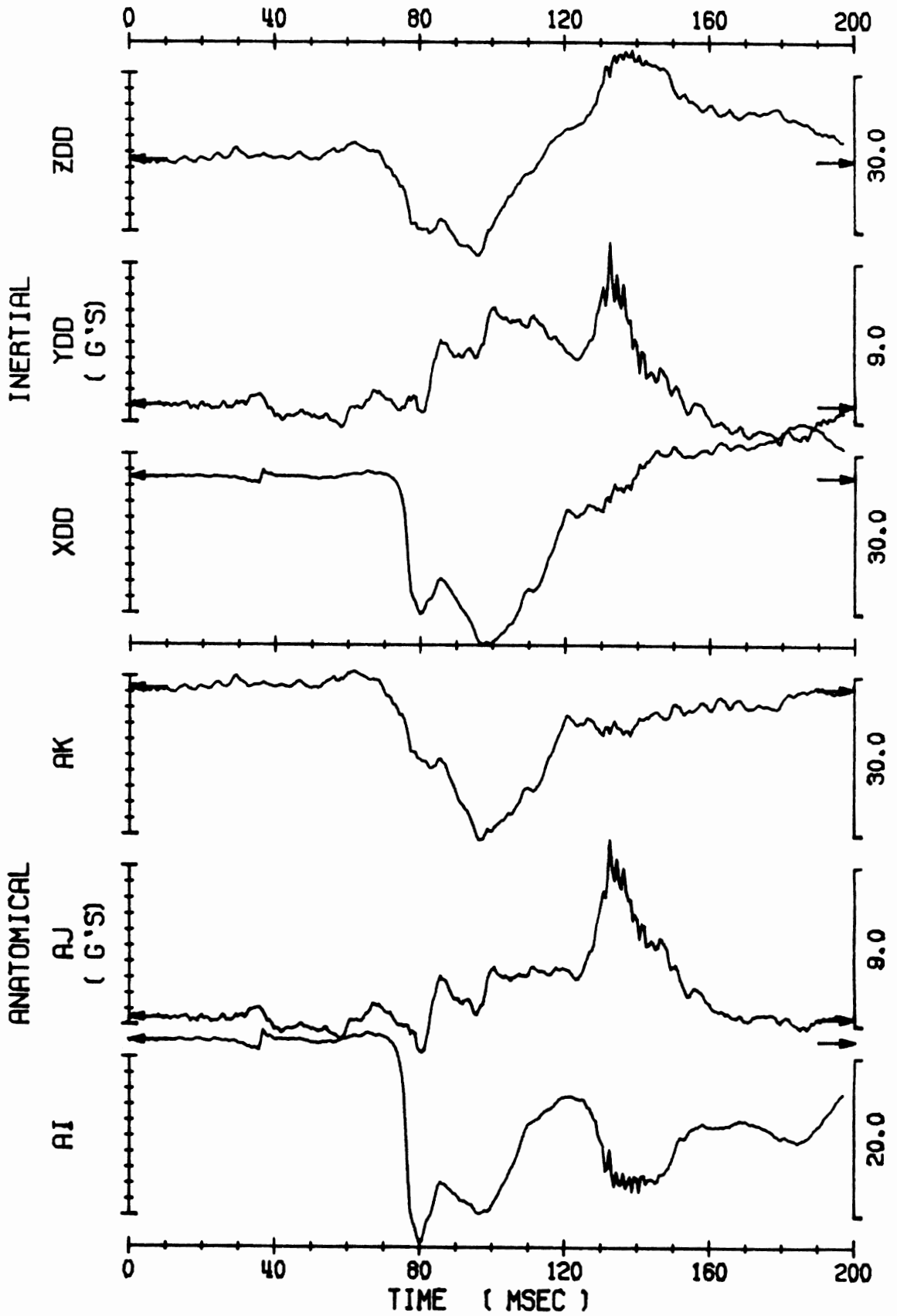


3-D ROTATIONS

FILE: 179

76B003-1: WBR-12

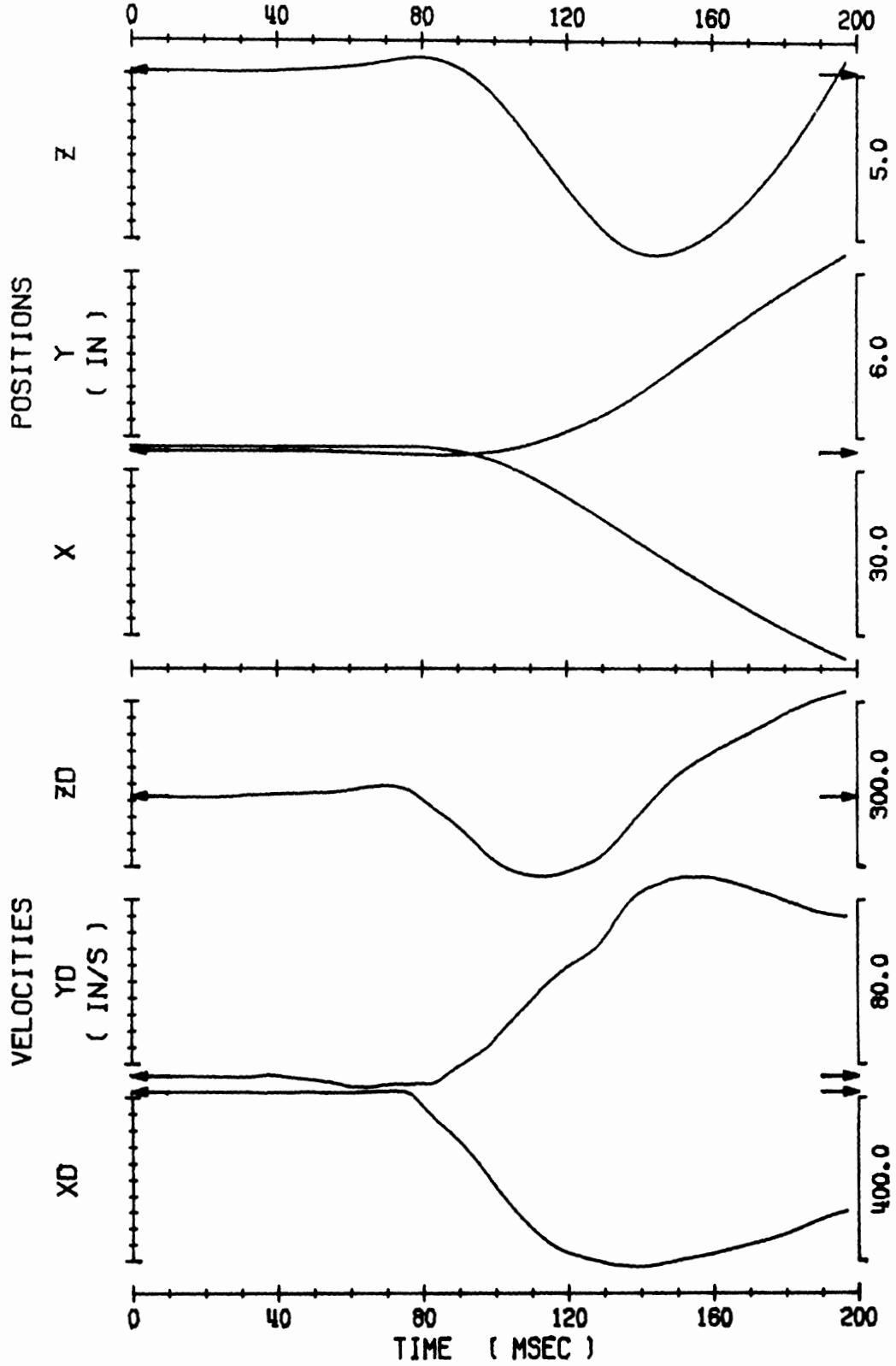
ACC OF: ANATOMICAL CENTER GSI= 223, HIC= 168



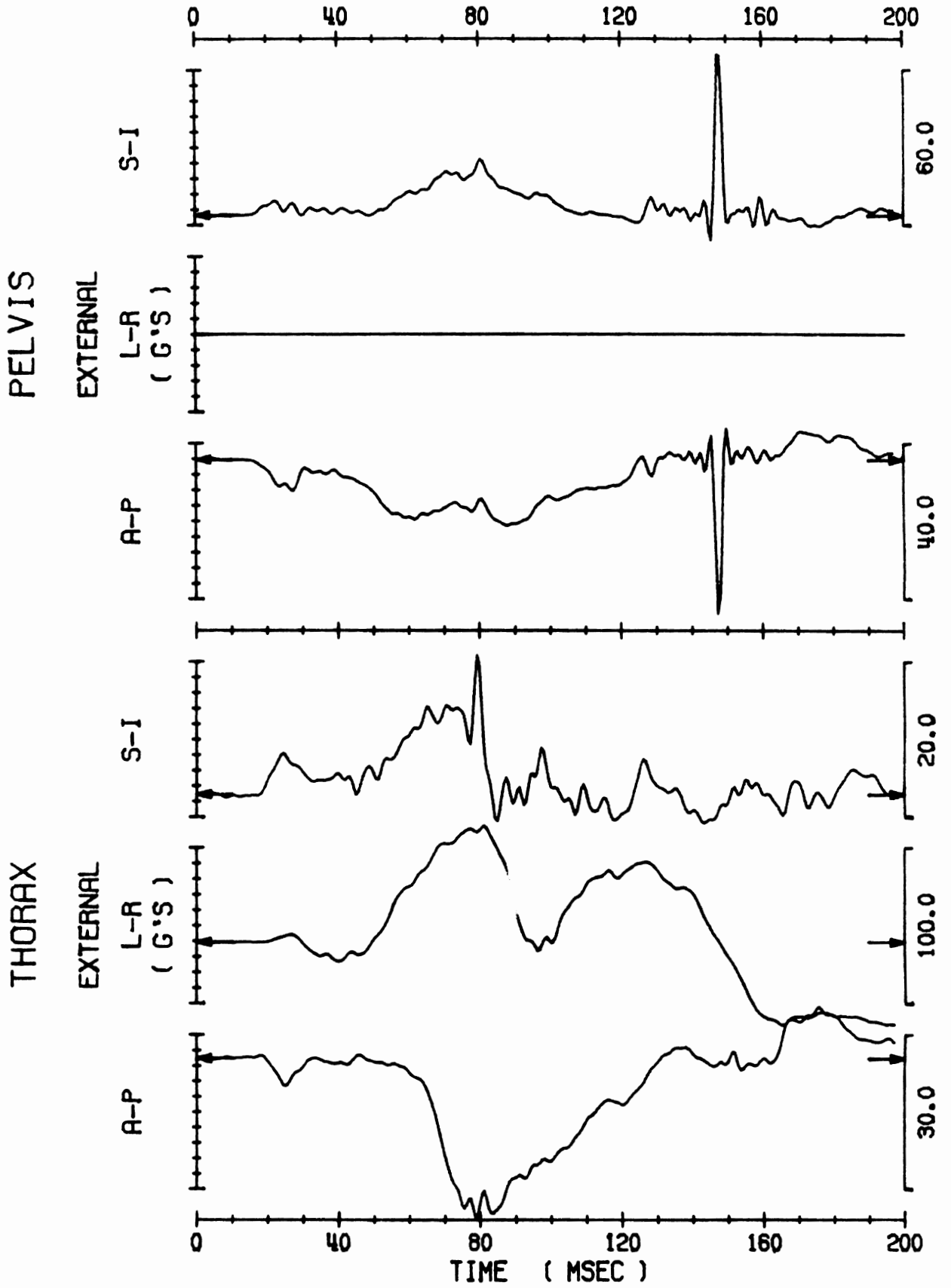
3-D ACCELERATIONS

ANATOMICAL CENTER

INERTIAL MOTION OF:

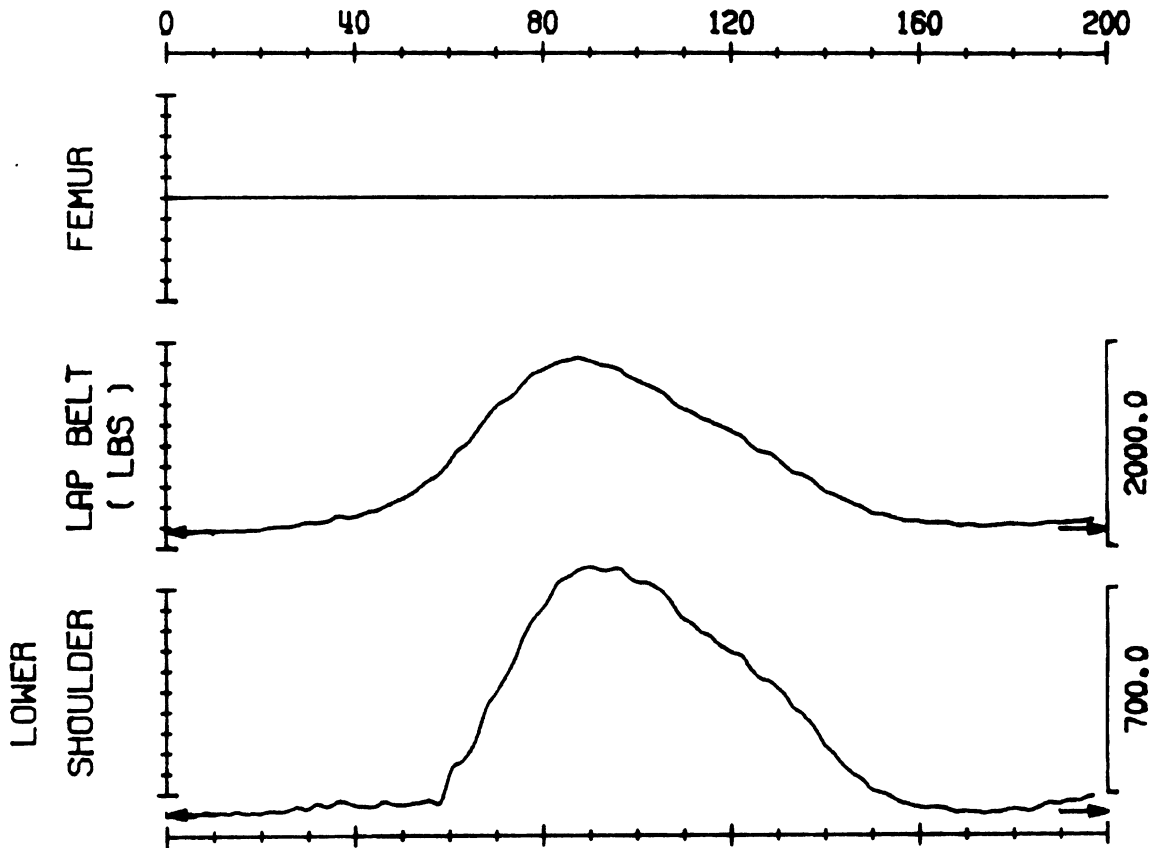


3-D TRANSLATIONS

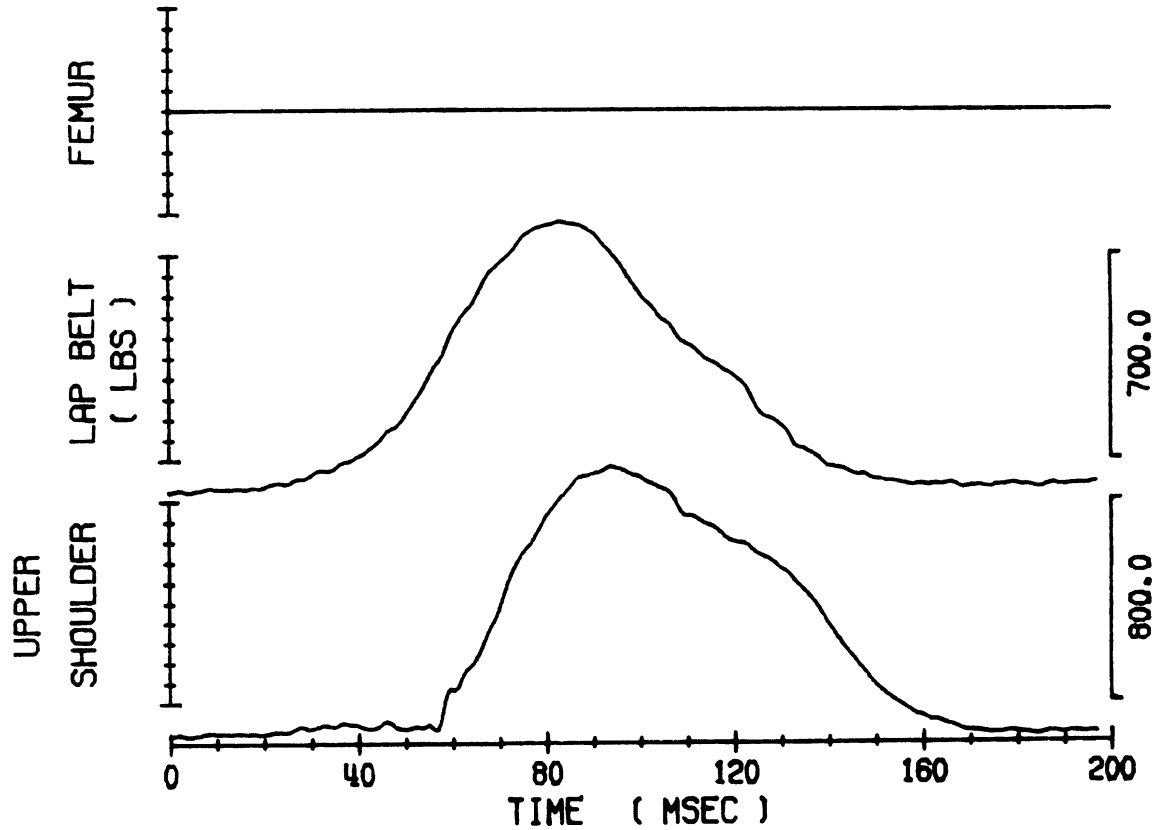


MEASURED ACCELERATIONS

RIGHT SIDE



LEFT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: 76B0C4
=====

SUBJECT: WBR-13

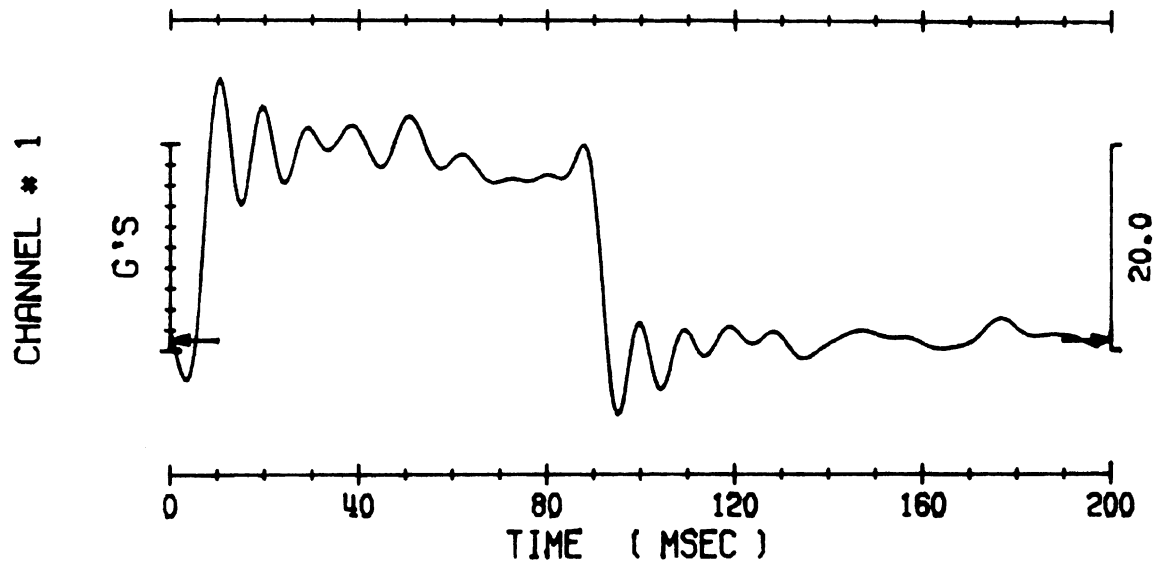
18.4 G-LEVEL
87. MS LONG
32.2 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1563. | 1314. | 1472. | 2819. | 0. | 0. |
| (LBS) @ (MS) | 82.7 | 82.7 | 67.1 | 67.7 | 0.0 | 0.0 |

| | RESULTANT | (A-P) | | (L-R) | | (S-I) | |
|----------------|-----------|-------|-------|-------|-------|-------|-------|
| | PEAK | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 115. | -25. | 47. | -15. | 11. | -20. | -4. |
| (G'S) @ | 60.8 | 80.6 | 62.7 | 87.2 | 101.9 | 86.6 | 71.4 |
| GSI= | 439 | | | | | | |
| EX PELVIS ACC: | 0. | -29. | 6. | 0. | 0. | -3. | 9. |
| (G'S) @ | 0.0 | 65.8 | 111.6 | 0.0 | 0.0 | 137.1 | 103.8 |
| | | | | | | | |
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

FILE: 183

76B004-1: WBR-13

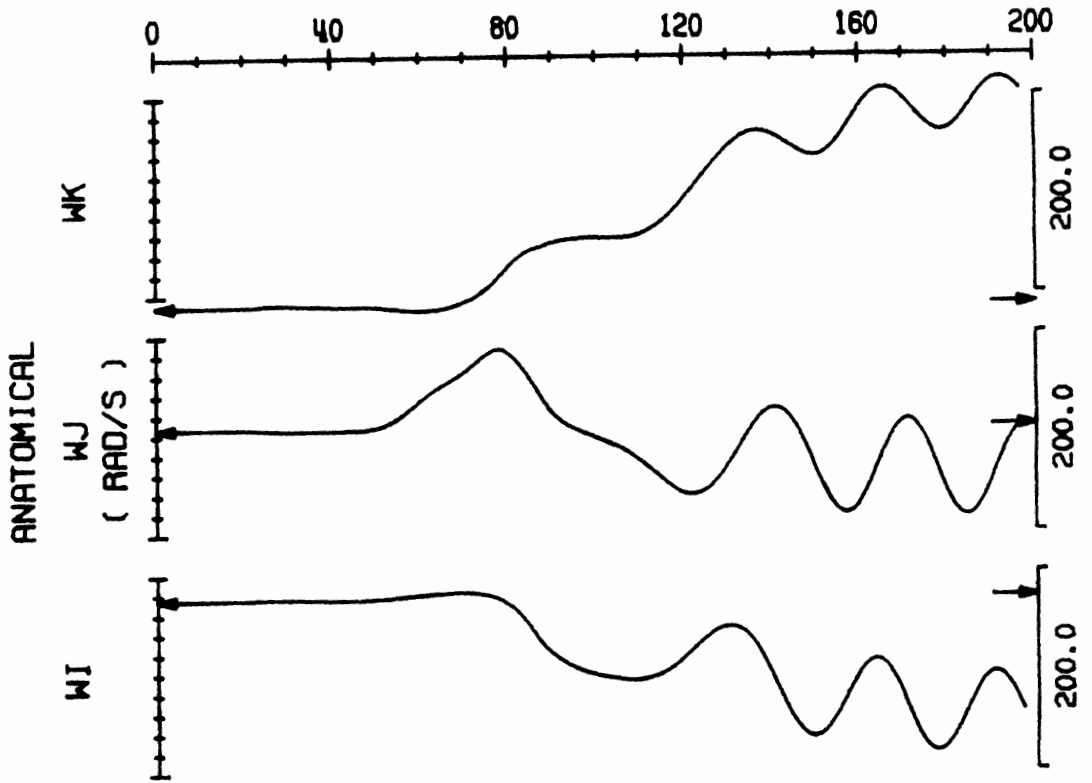


SLED DECELERATION

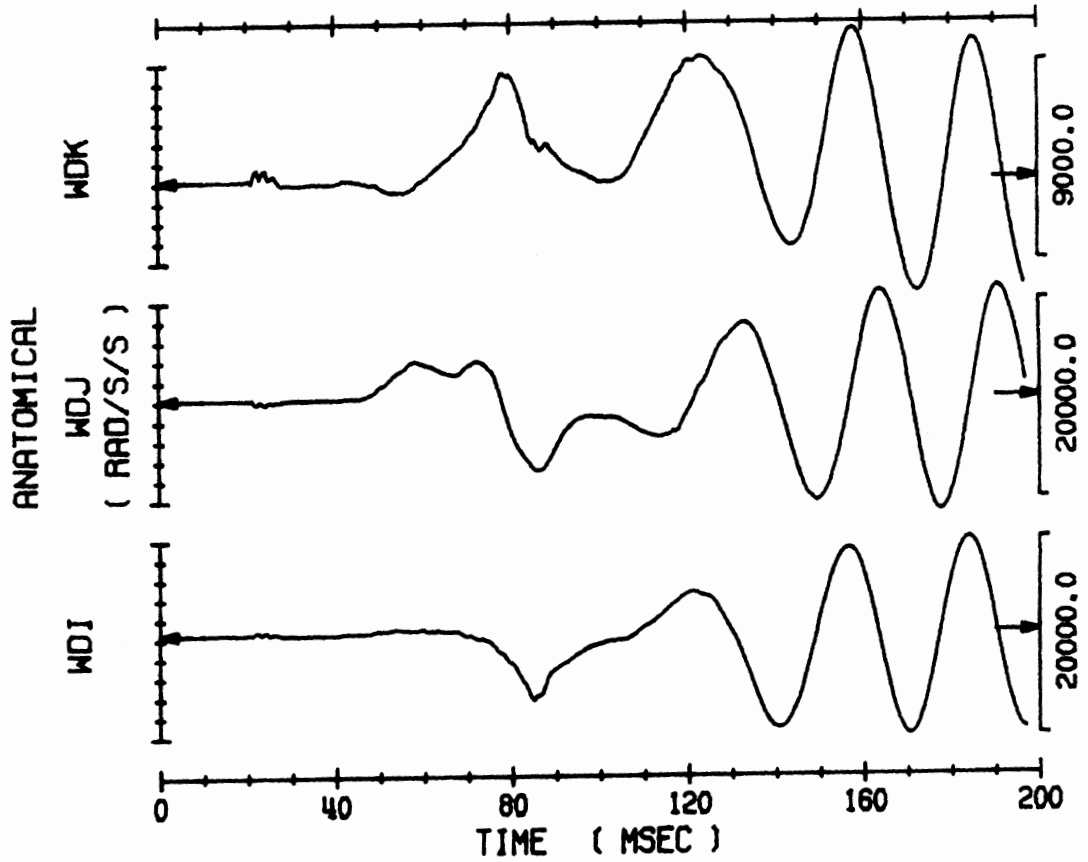
FILE: 187

76B004-1: WBR-13

ANG VELOCITIES



ANG ACCELERATIONS



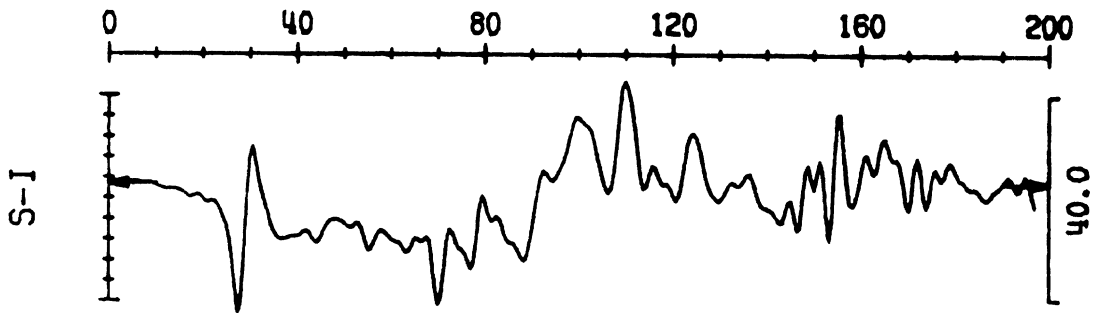
3-D ANGULAR MOTION

FILE: 191

76B004-2: WBR-13

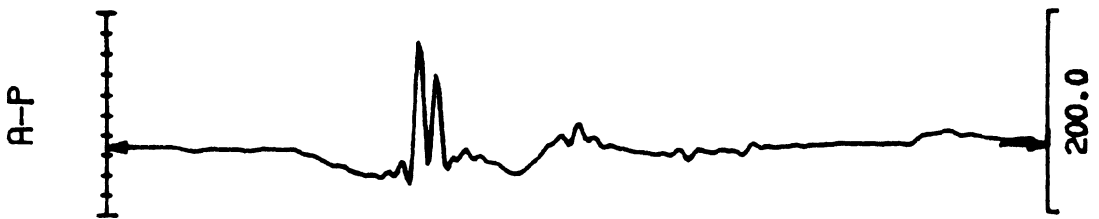
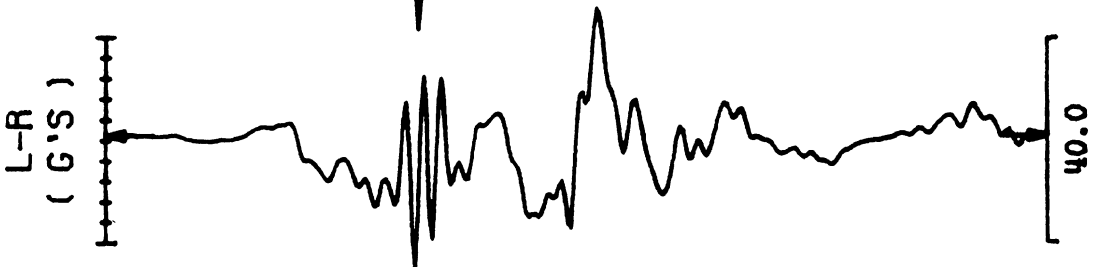
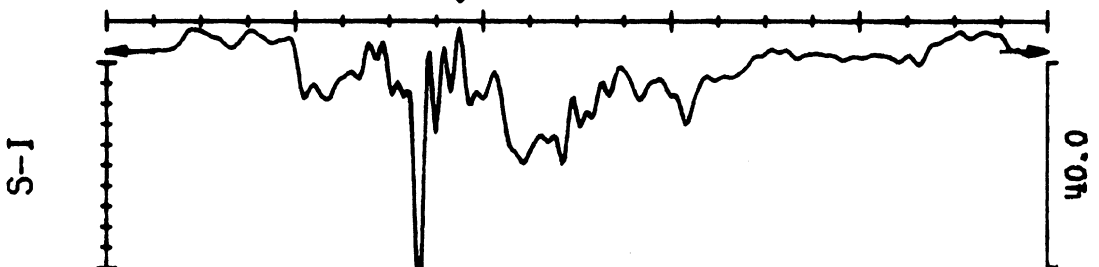
PELVIS

EXTERNAL



THORAX

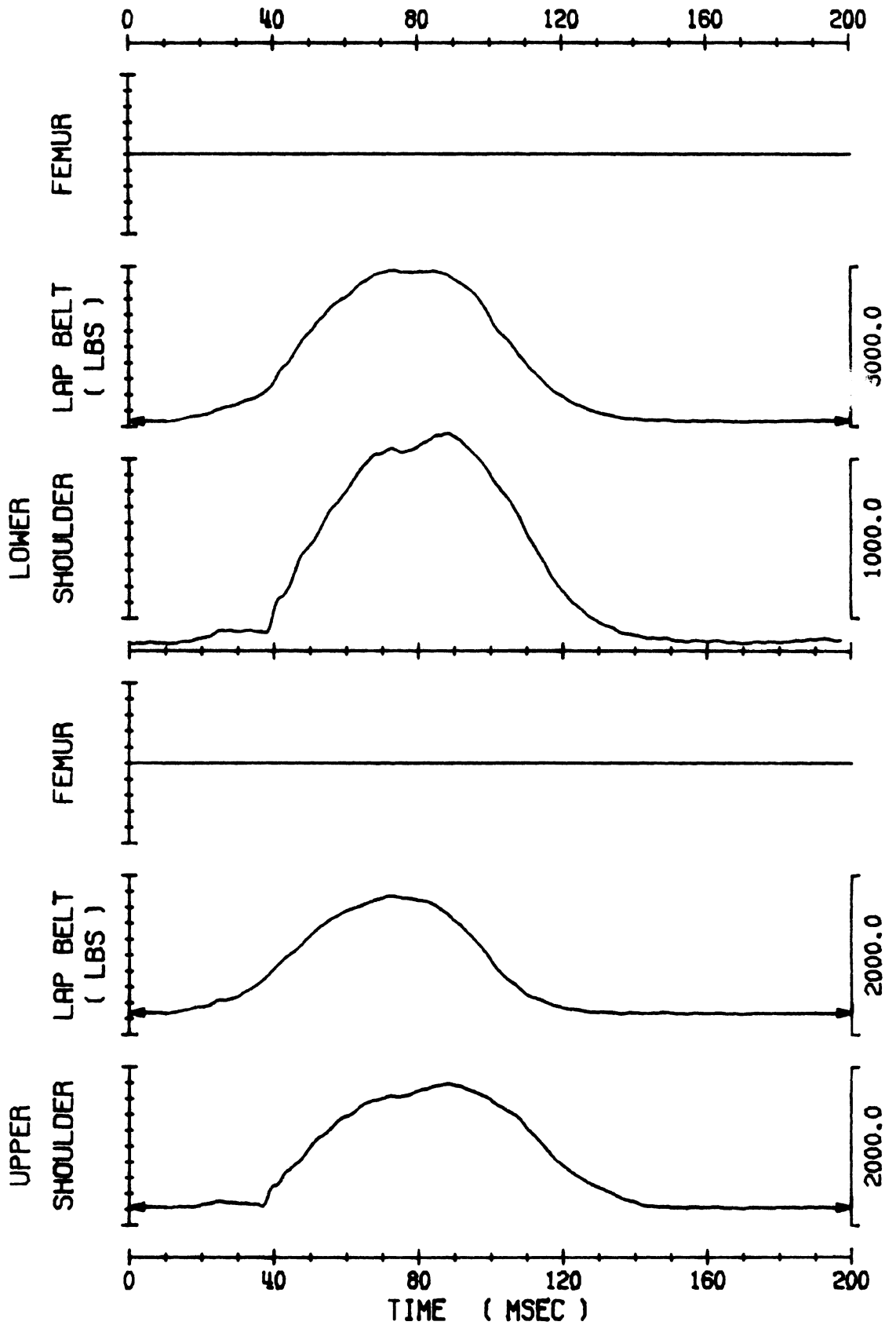
EXTERNAL



0 40 80 120 160 200
TIME (MSEC)

MEASURED ACCELERATIONS

RIGHT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: 76B005
=====

SUBJECT: WBR-14

11.0 G-LEVEL
108. MS LONG
25.0 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 724. | 842. | 1133. | 1752. | 0. | 0. |
| (LBS) @ (MS) | 88.3 | 91.5 | 91.5 | 84.0 | 0.0 | 0.0 |

| | RESULTANT | (A-P) | | (L-R) | | (S-I) | |
|----------------|-----------|-------|-------|-------|-------|-------|------|
| | PEAK | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 24. | -21. | 2. | -13. | 12. | -7. | 4. |
| (G'S) @ | 101.5 | 100.0 | 126.9 | 130.6 | 106.3 | 54.0 | 32.2 |
| GSI= | 117 | | | | | | |
| EX PELVIS ACC: | 0. | -16. | 4. | 0. | 0. | -3. | 10. |
| (G'S) @ | 0.0 | 85.0 | 135.5 | 0.0 | 0.0 | 114.7 | 86.0 |

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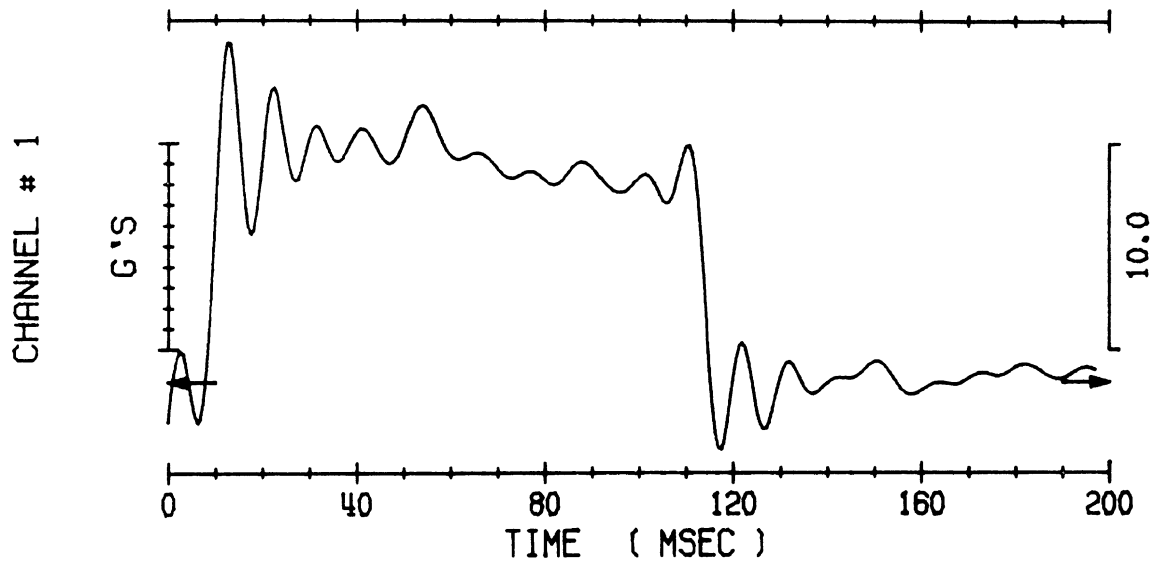
| | | | | | | | |
|----------------|-------|-------|-------|--------|-------|--------|-------|
| HEAD ANG ACC : | 2508. | -833. | 990. | -1928. | 2086. | -1068. | 1038. |
| (RAD/S/S) @ | 64.6 | 120.0 | 93.5 | 100.0 | 70.5 | 102.7 | 69.6 |
| HEAD ANG VEL : | 50.4 | -6.7 | 6.7 | -8.0 | 45.4 | -1.5 | 18.9 |
| (RAD/S) @ | 87.1 | 132.1 | 108.2 | 167.1 | 87.4 | 116.0 | 86.8 |
| EULER ANGLES : | | | 190.0 | | 87.1 | | 169.0 |
| (DEGREES) @ | | | 124.5 | | 112.8 | | 124.3 |

.....

| | | | | | | | |
|----------------|-------|-------|-------|-------|-------|-------|-------|
| HEAD C.G. ACC: | 33. | -21. | 1. | -4. | 11. | -30. | -1. |
| (G'S) @ | 96.5 | 74.2 | 98.5 | 65.3 | 100.5 | 93.7 | 167.4 |
| HEAD C.G. HIC= | 184 | | | | | | |
| HEAD C.G. VEL: | 613. | -556. | 4. | -82. | 5. | -122. | 177. |
| (IN/S) @ | 189.0 | 167.1 | 51.4 | 135.5 | 53.4 | 103.8 | 167.1 |
| HEAD C.G. DIS: | | | -18.2 | | -2.6 | | -4.1 |
| (IN) @ | | | 125.6 | | 125.6 | | 125.8 |

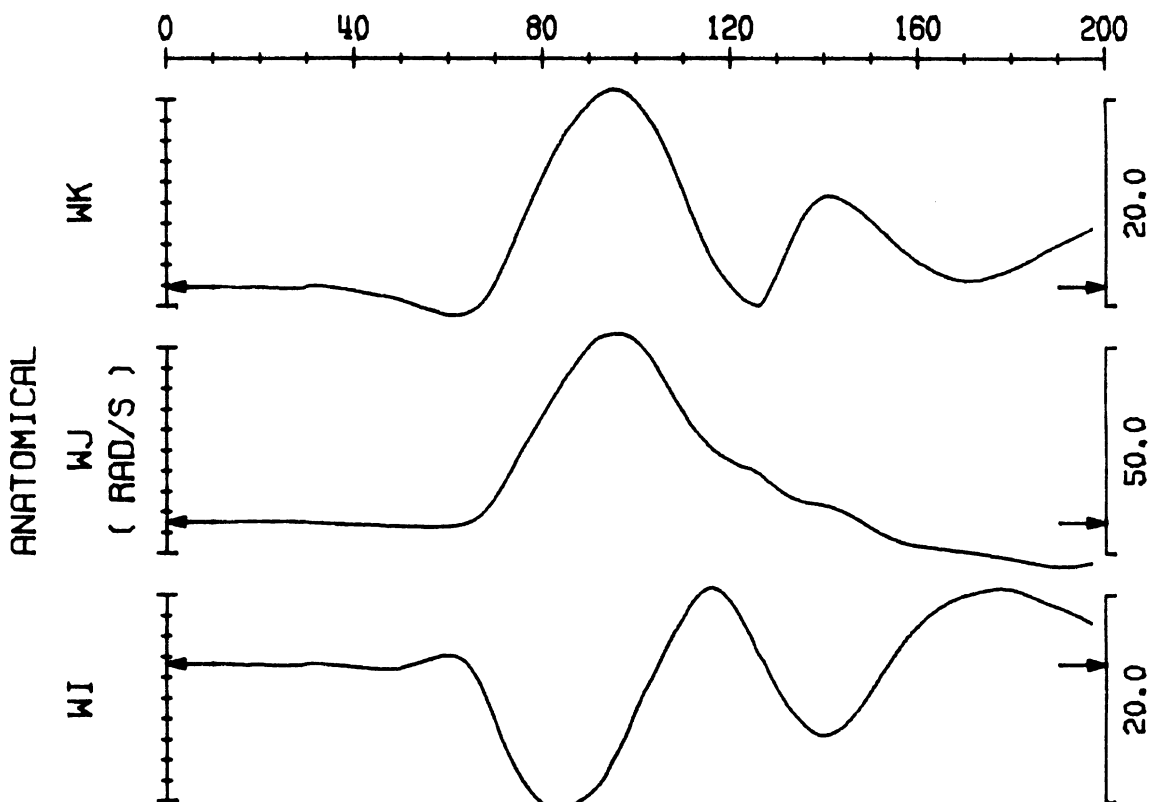
FILE: 193

76B005-1: WBR-14

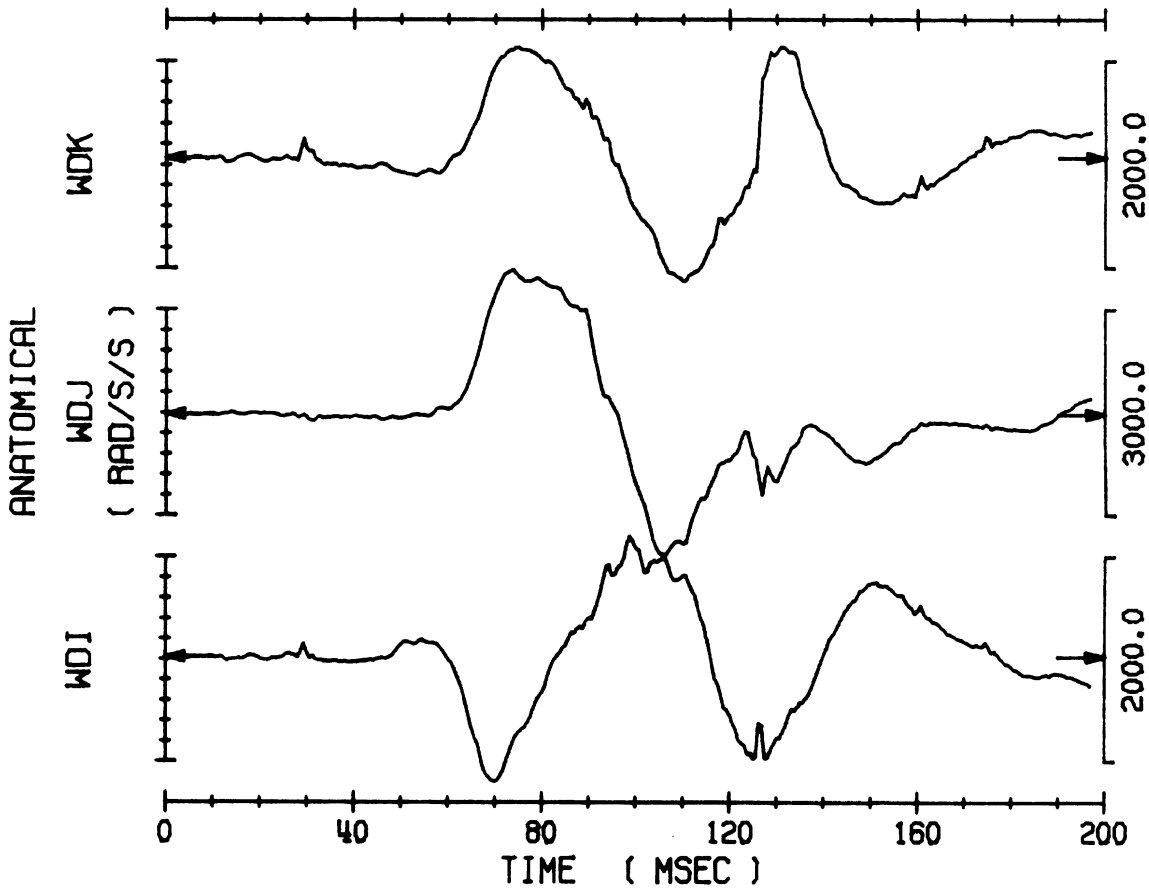


SLED DECELERATION

ANG VELOCITIES



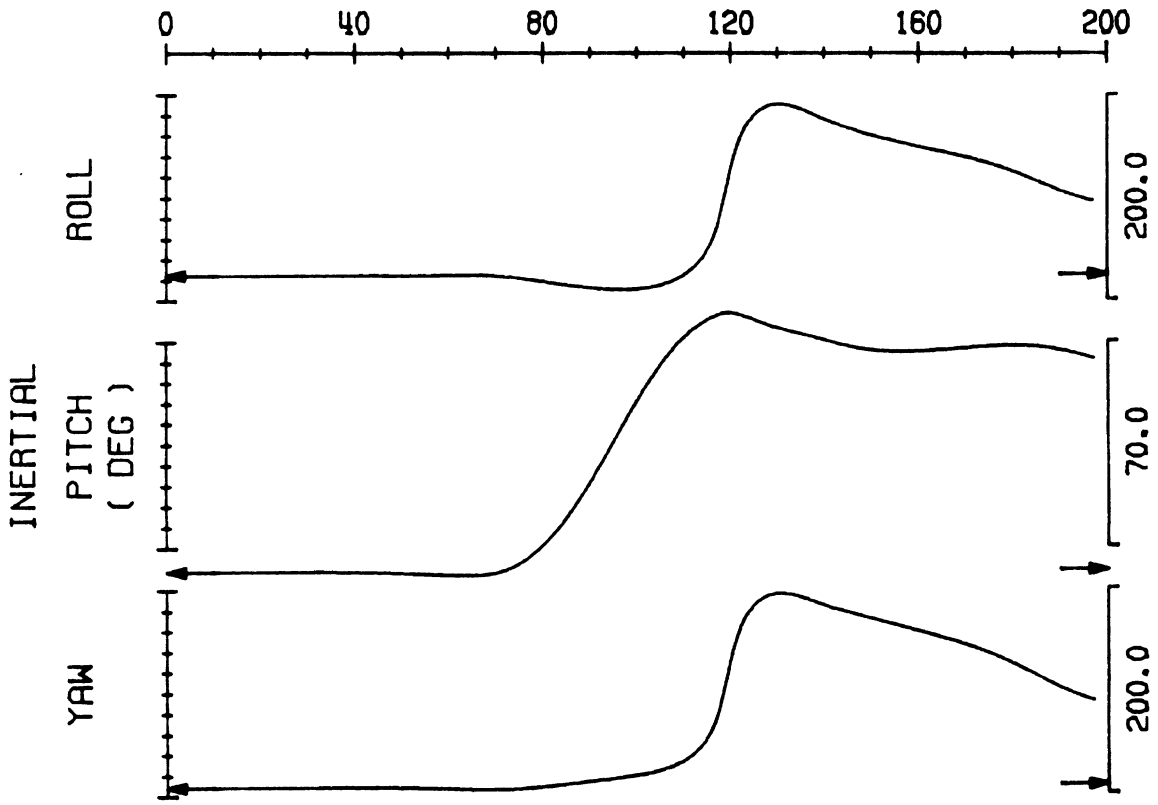
ANG ACCELERATIONS



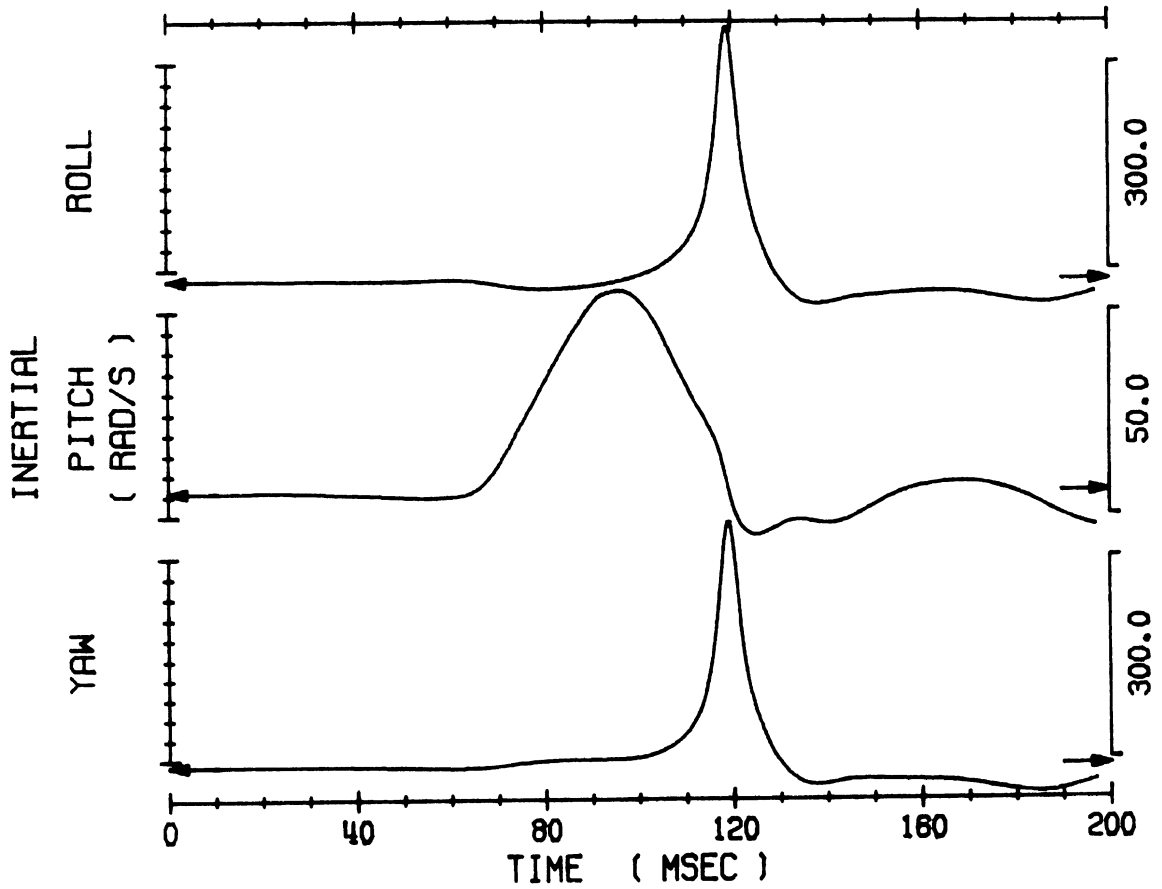
TIME (MSEC)

3-D ANGULAR MOTION

EULER ANGLES

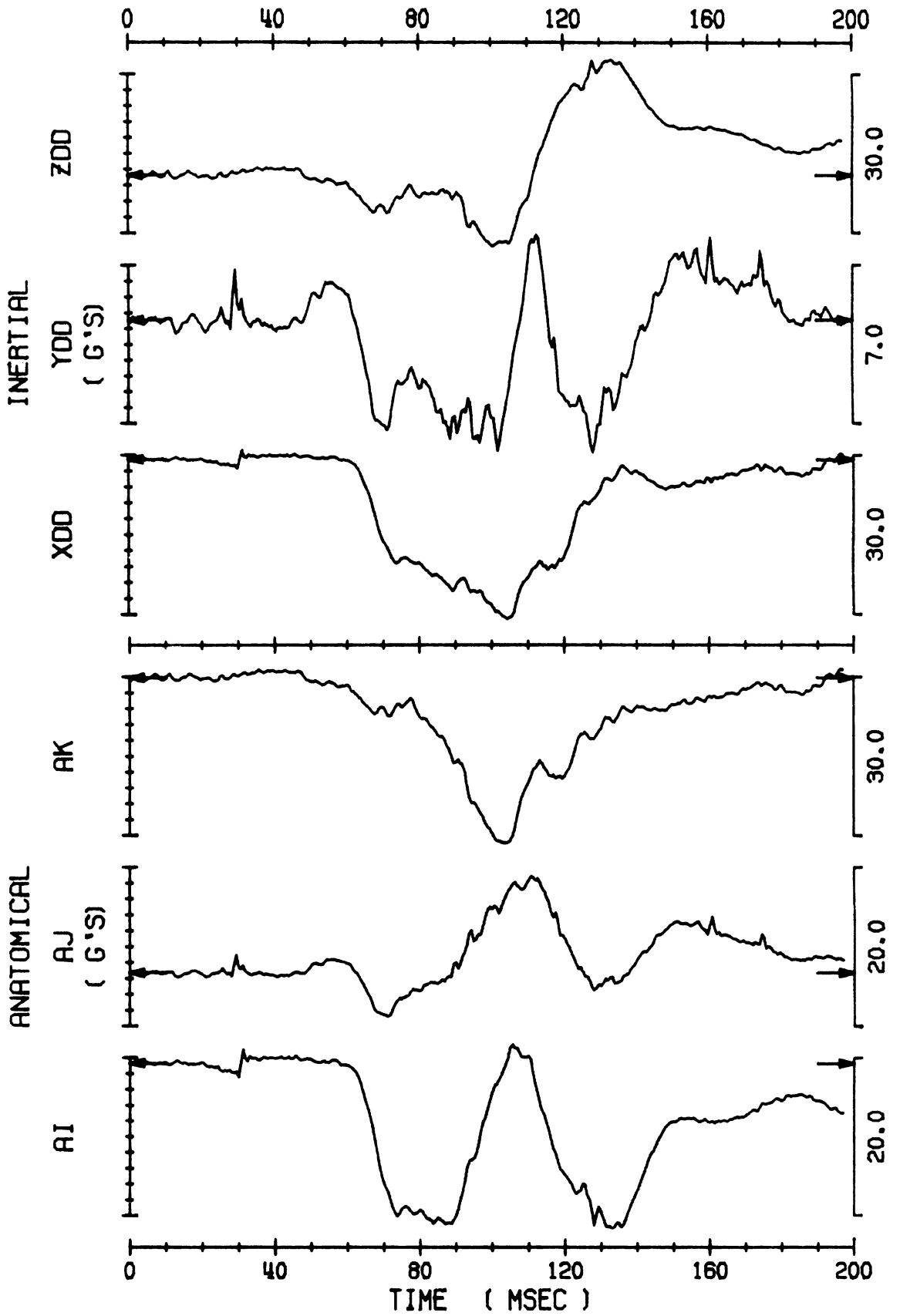


EULER RATES



3-D ROTATIONS

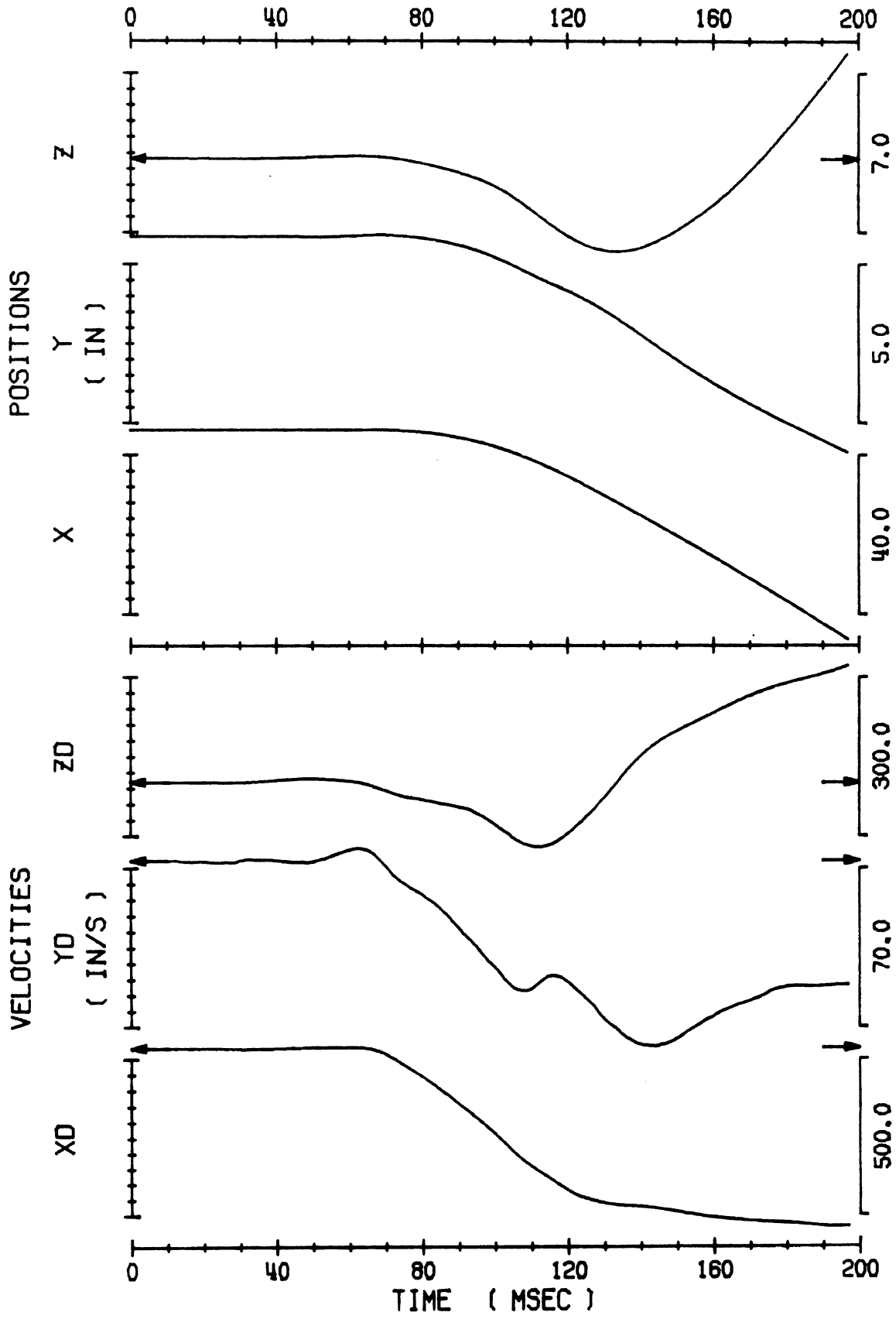
ACC OF: ANATOMICAL CENTER GSI= 209, HIC= 184



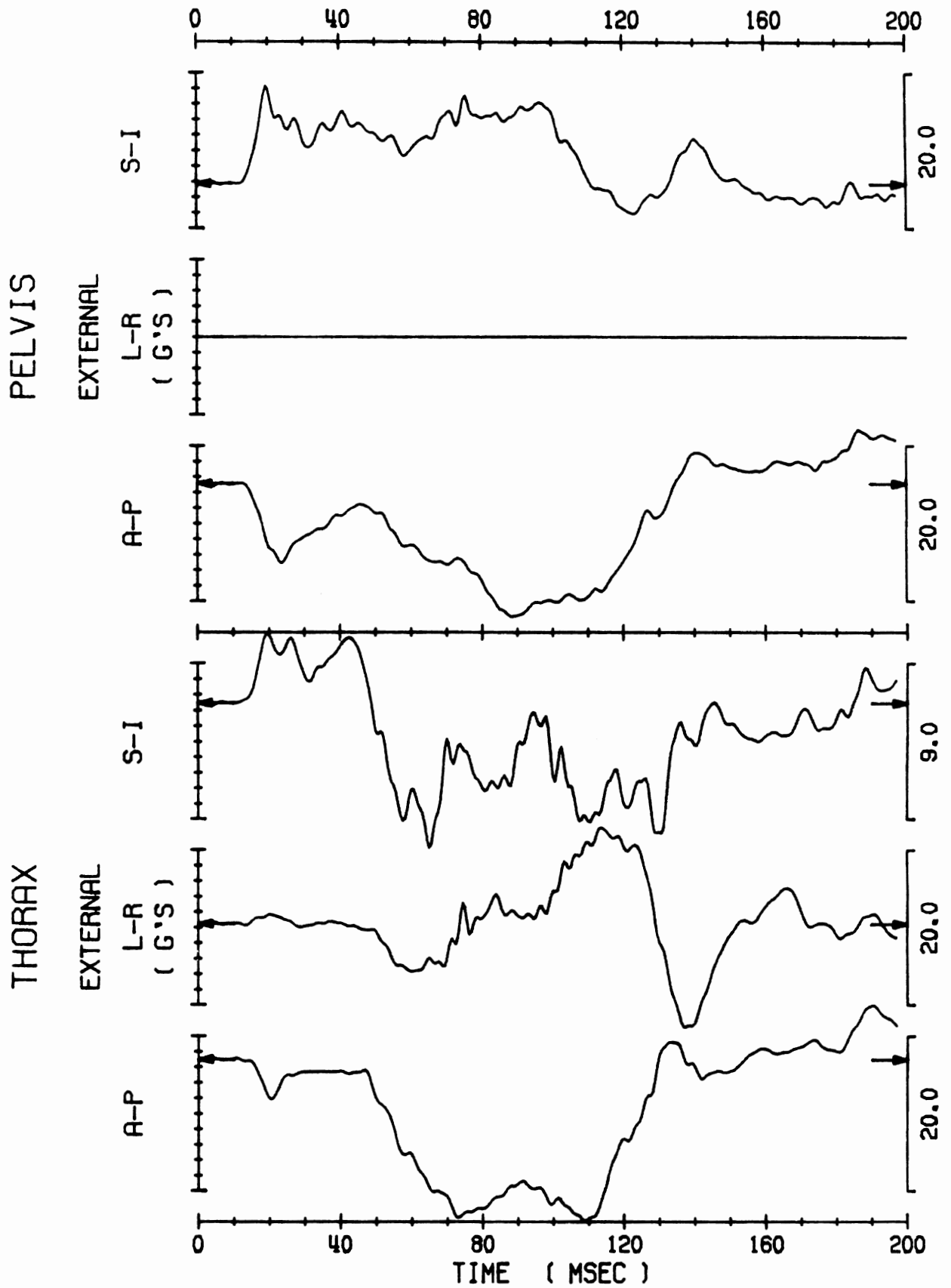
3-D ACCELERATIONS

ANATOMICAL CENTER

INERTIAL MOTION OF:

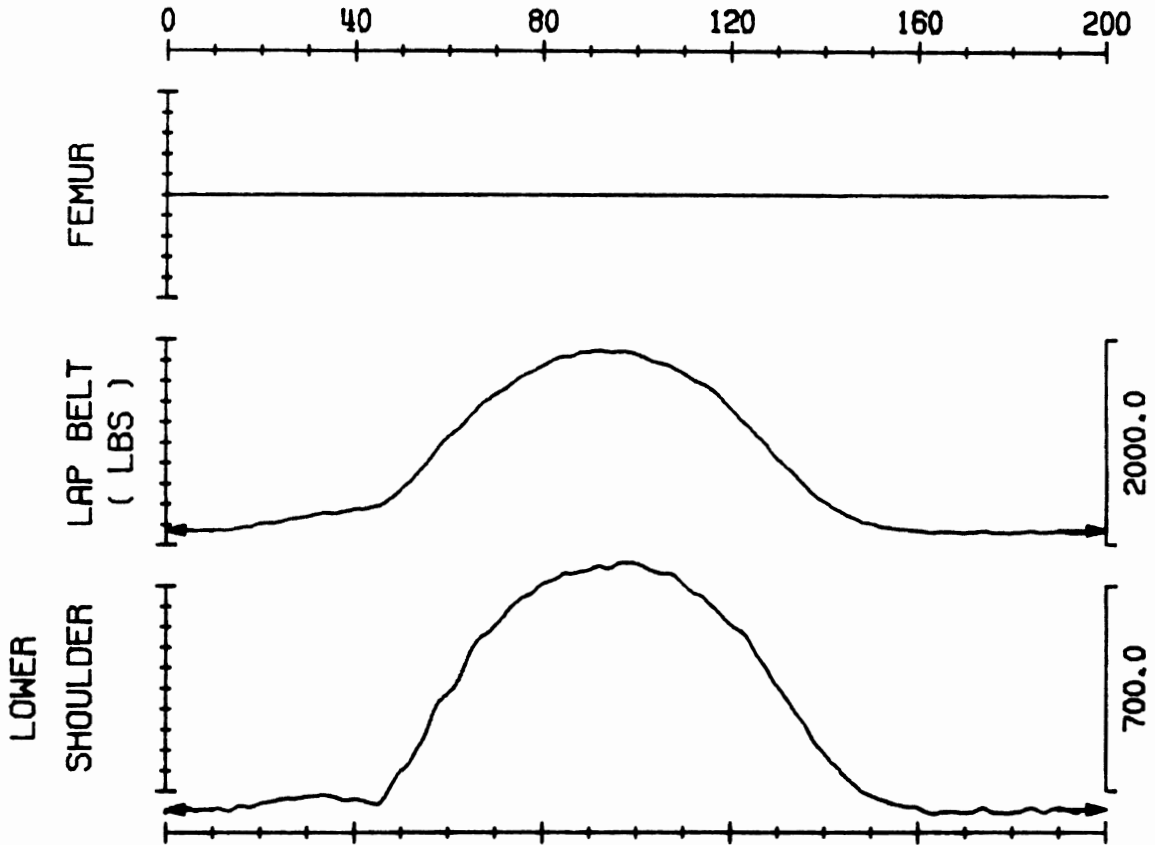


3-D TRANSLATIONS

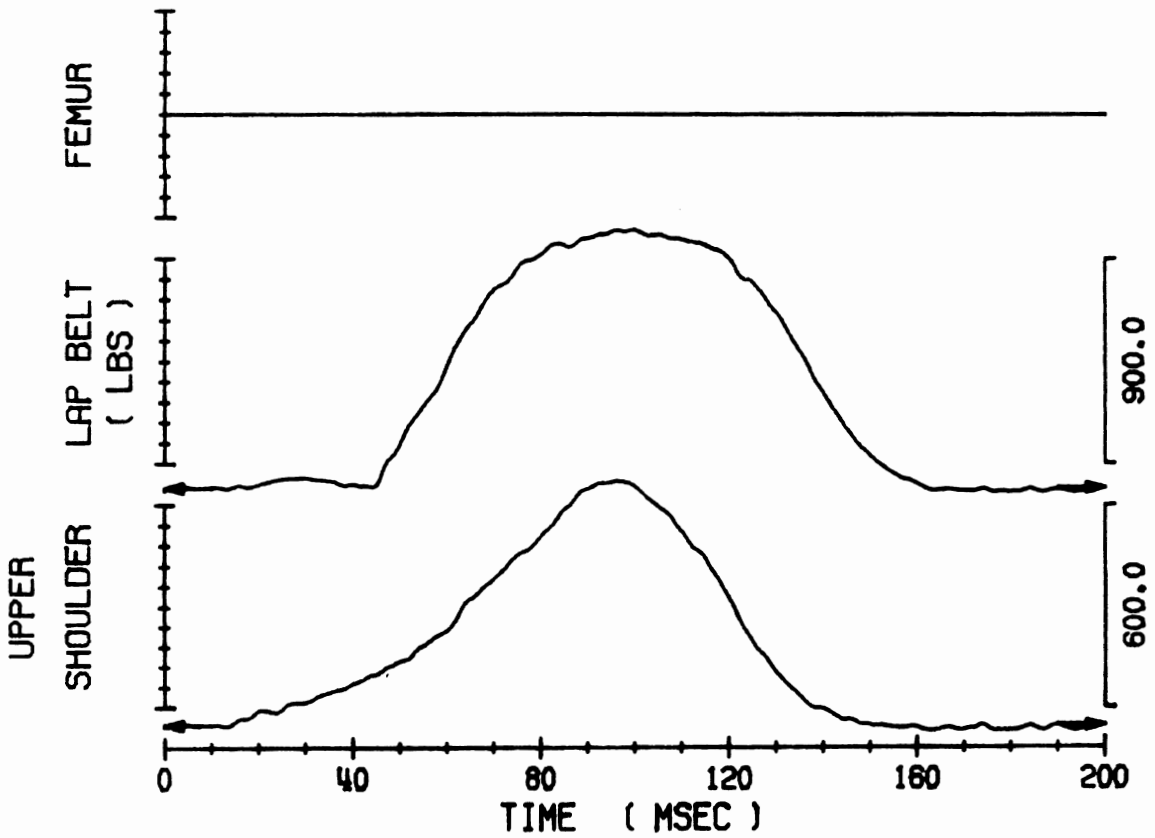


MEASURED ACCELERATIONS

RIGHT SIDE



LEFT SIDE



MEASURED FORCES

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: 76B006
=====

SUBJECT: WBR-15

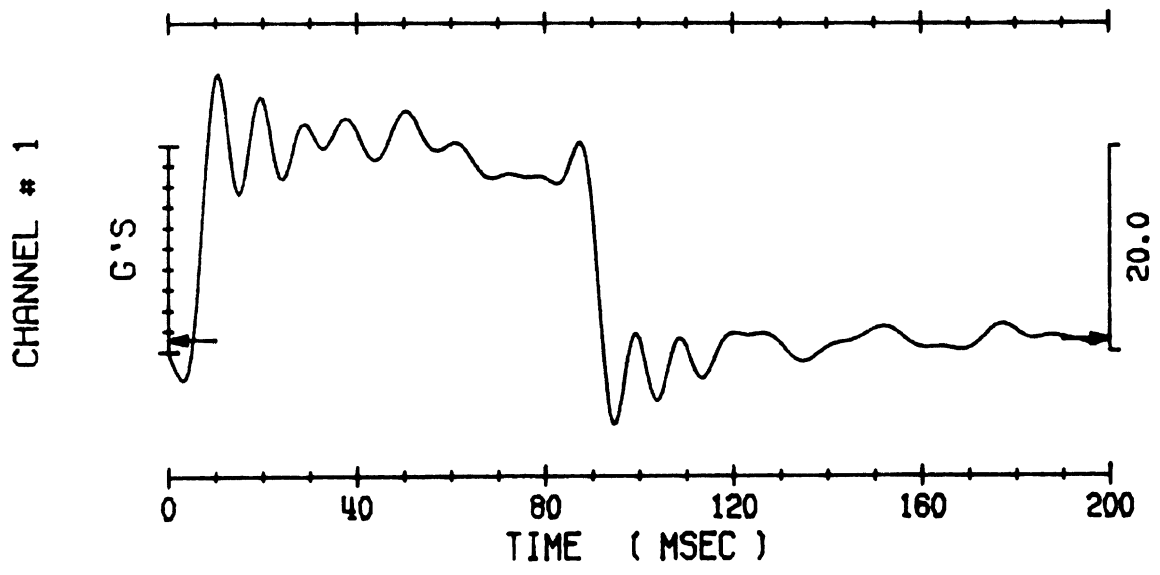
19.2 G-LEVEL
87. MS LONG
32.0 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 2176. | 1487. | 1753. | 3153. | 0. | 0. |
| (LBS) @ (MS) | 87.2 | 87.8 | 82.8 | 81.6 | 0.0 | 0.0 |

| | RESULTANT | (A-P) | | (L-R) | | (S-I) | |
|----------------|-----------|--------|-------|--------|-------|--------|-------|
| | PEAK | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 58. | -4. | 38. | -14. | 5. | -21. | 12. |
| (G'S) @ | 76.6 | 141.0 | 74.9 | 73.5 | 99.2 | 56.2 | 108.1 |
| GSI= | 400 | | | | | | |
| EX PELVIS ACC: | 0. | -3. | 31. | 0. | 0. | -5. | 27. |
| (G'S) @ | 0.0 | 122.3 | 76.7 | 0.0 | 0.0 | 116.4 | 79.5 |
| | | | | | | | |
| HEAD ANG ACC : | 2201. | -1034. | 1095. | -1545. | 1414. | -1233. | 1322. |
| (RAD/S/S) @ | 89.7 | 52.9 | 91.5 | 89.2 | 49.5 | 88.2 | 102.4 |
| HEAD ANG VEL : | 30.4 | -14.6 | 7.4 | 0.7 | 26.0 | -7.3 | 10.4 |
| (RAD/S) @ | 81.6 | 71.8 | 115.3 | 163.5 | 72.0 | 160.2 | 113.7 |
| EULER ANGLES : | | | 3.8 | | 75.1 | | -24.2 |
| (DEGREES) @ | | | 132.8 | | 132.2 | | 133.8 |
| | | | | | | | |
| HEAD C.G. ACC: | 42. | -27. | -2. | -6. | 10. | -33. | 1. |
| (G'S) @ | 79.7 | 84.5 | 171.3 | 100.0 | 88.9 | 71.7 | 138.1 |
| HEAD C.G. HIC= | 353 | | | | | | |
| HEAD C.G. VEL: | 838. | -743. | 0. | -190. | -3. | -170. | 48. |
| (IN/S) @ | 190.4 | 131.6 | 29.7 | 122.4 | 29.7 | 81.9 | 179.7 |
| HEAD C.G. DIS: | | | -45.8 | | -11.5 | | -6.8 |
| (IN) @ | | | 144.7 | | 144.7 | | 144.6 |

FILE: 203

76B006-1: WBR-15



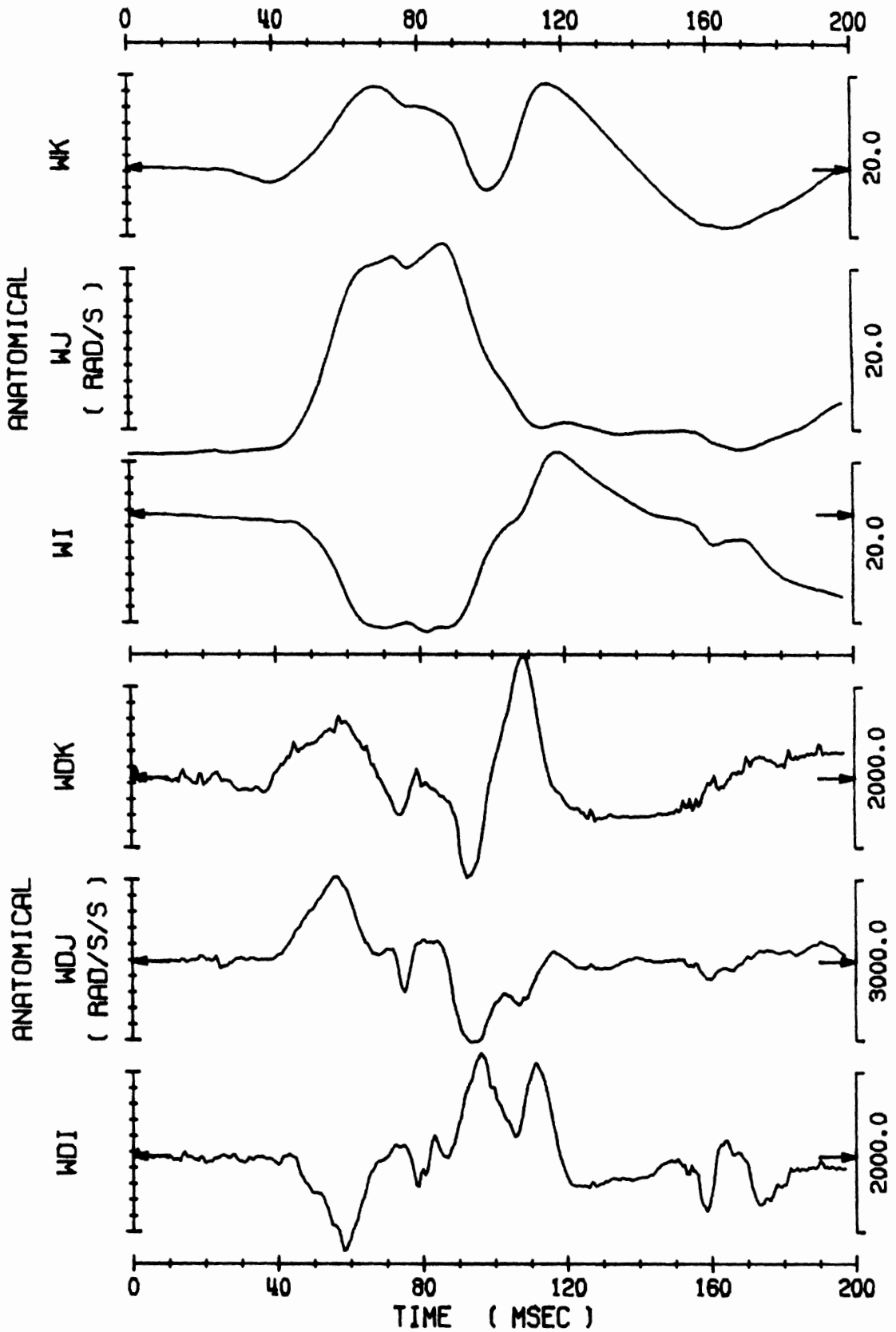
SLED DECELERATION

FILE: 207

76B006-1: WBR-15

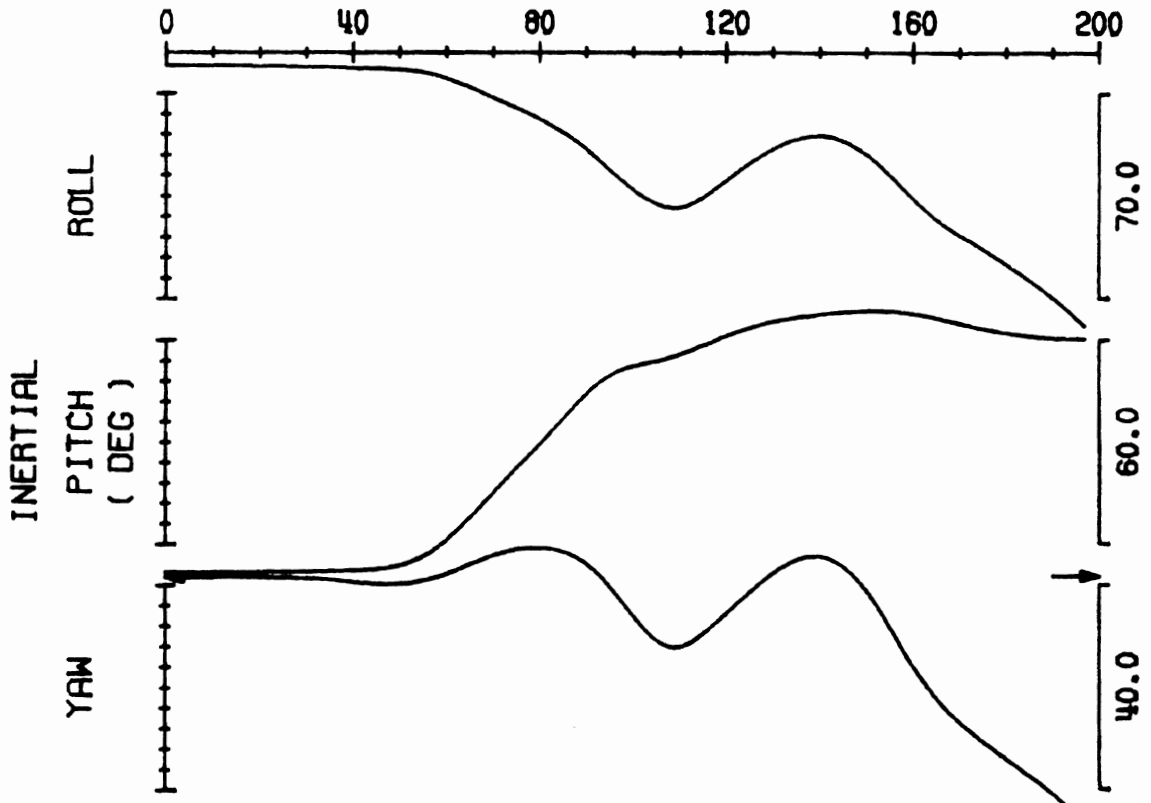
ANG VELOCITIES

ANG ACCELERATIONS

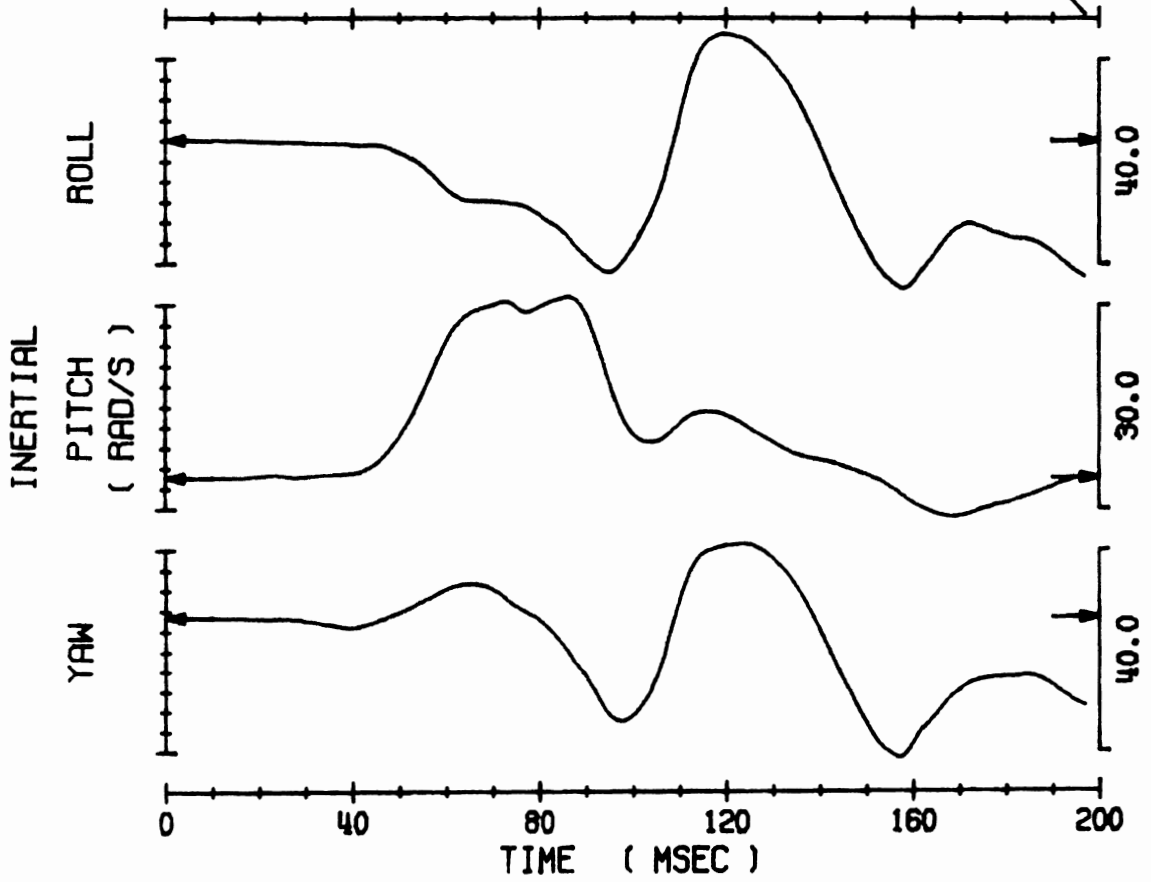


3-D ANGULAR MOTION

EULER ANGLES



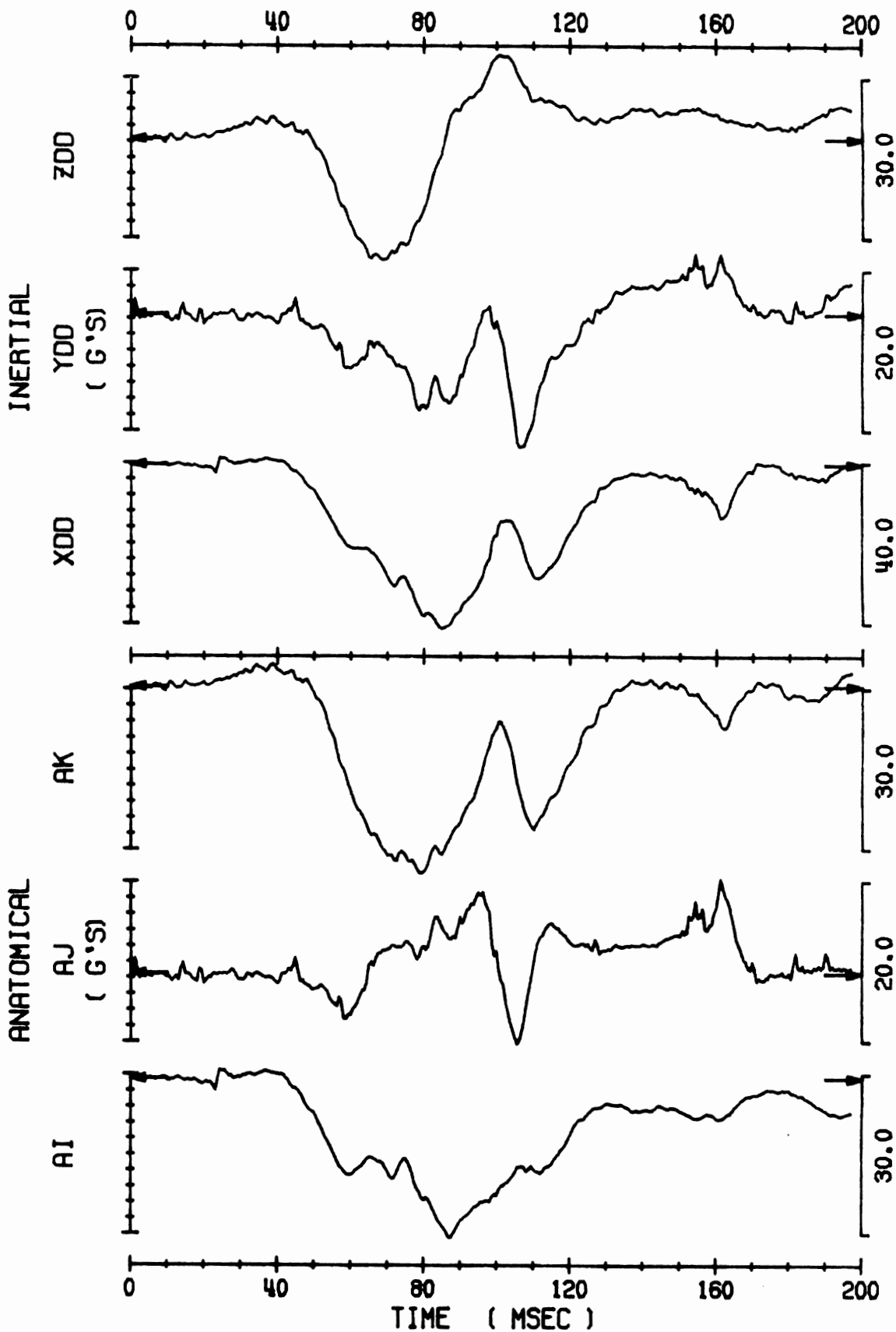
EULER RATES



3-D ROTATIONS

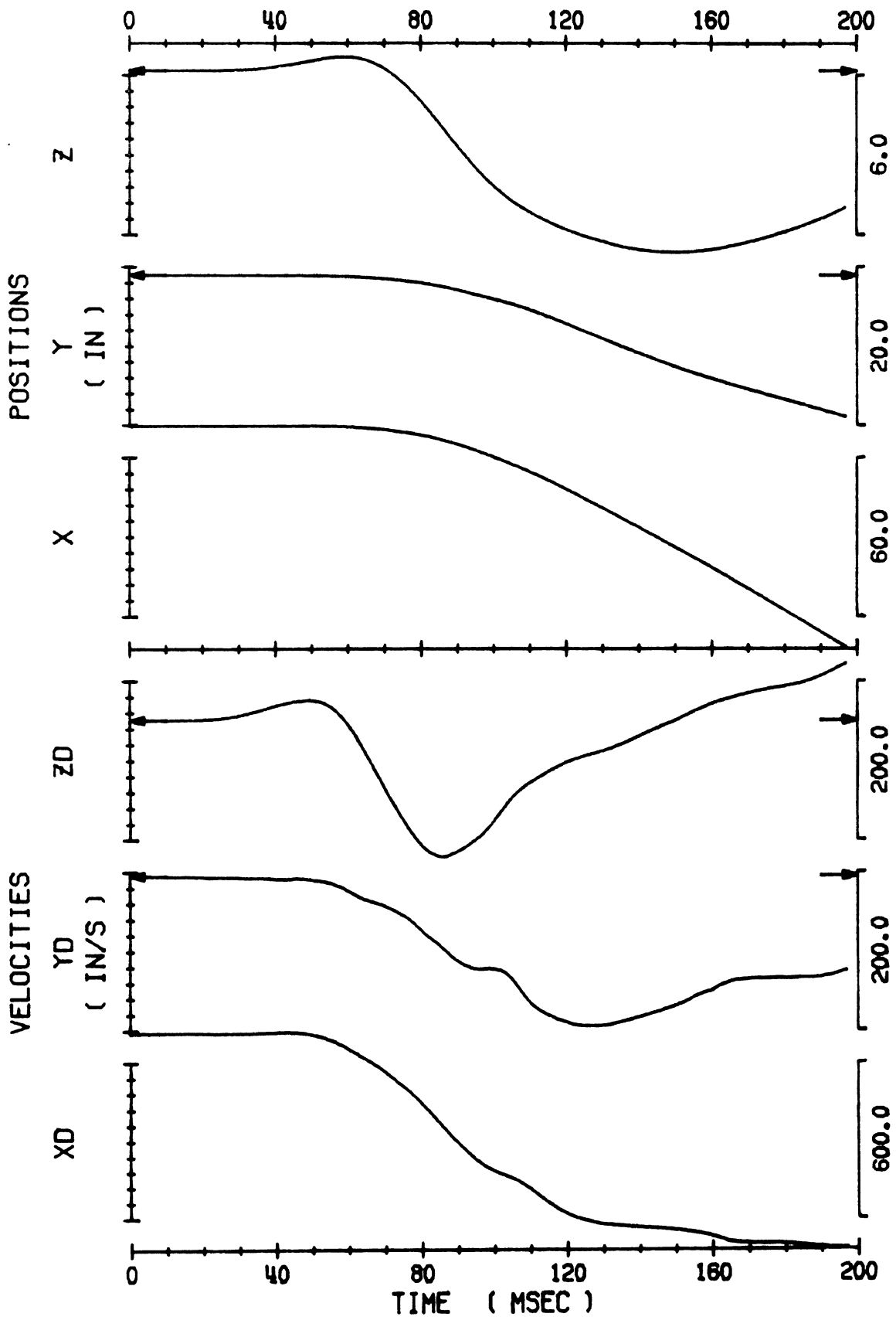
GSI= 401, HIC= 353

ACC OF: ANATOMICAL CENTER

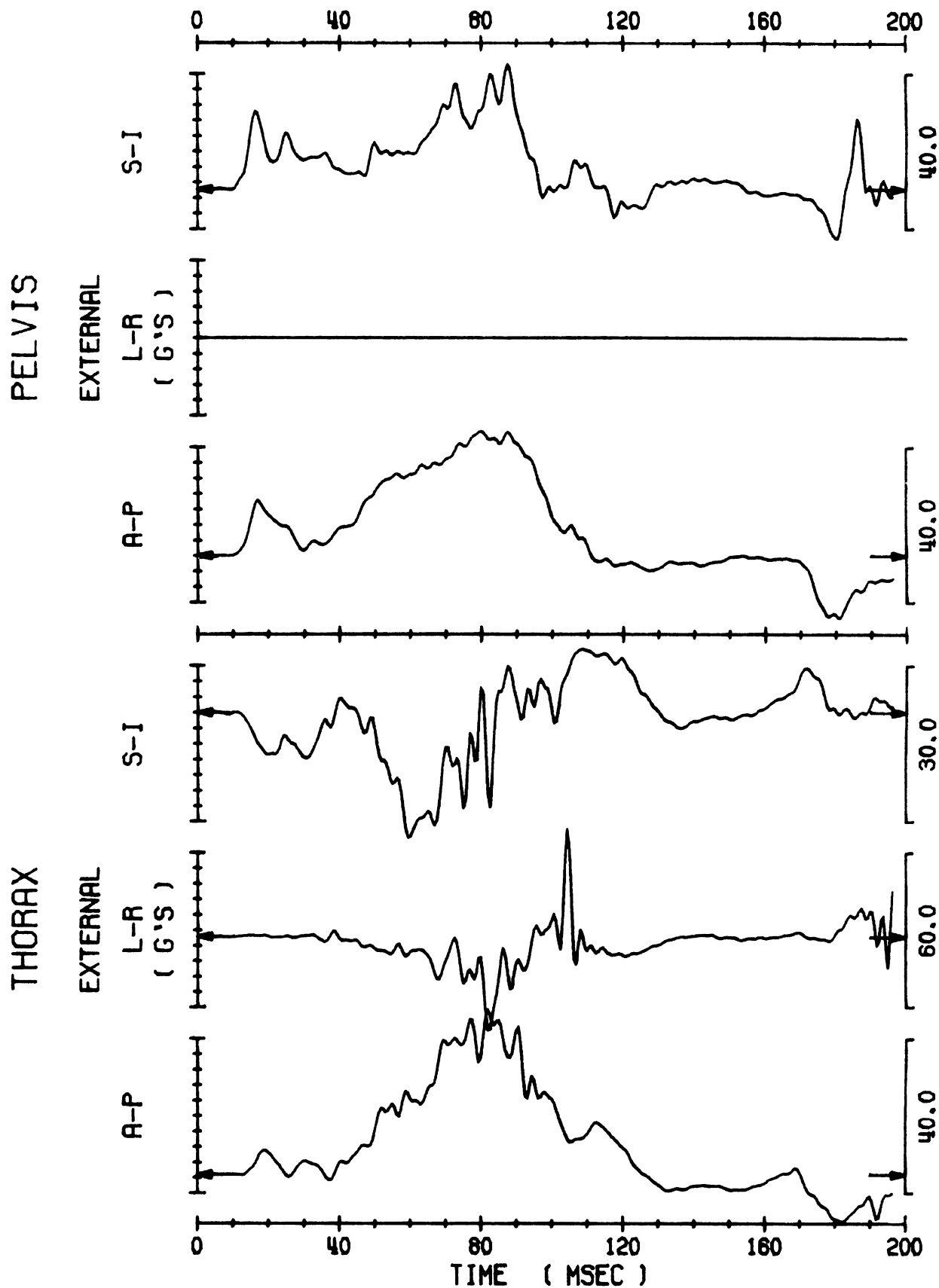


3-D ACCELERATIONS

INERTIAL MOTION OF:
ANATOMICAL CENTER

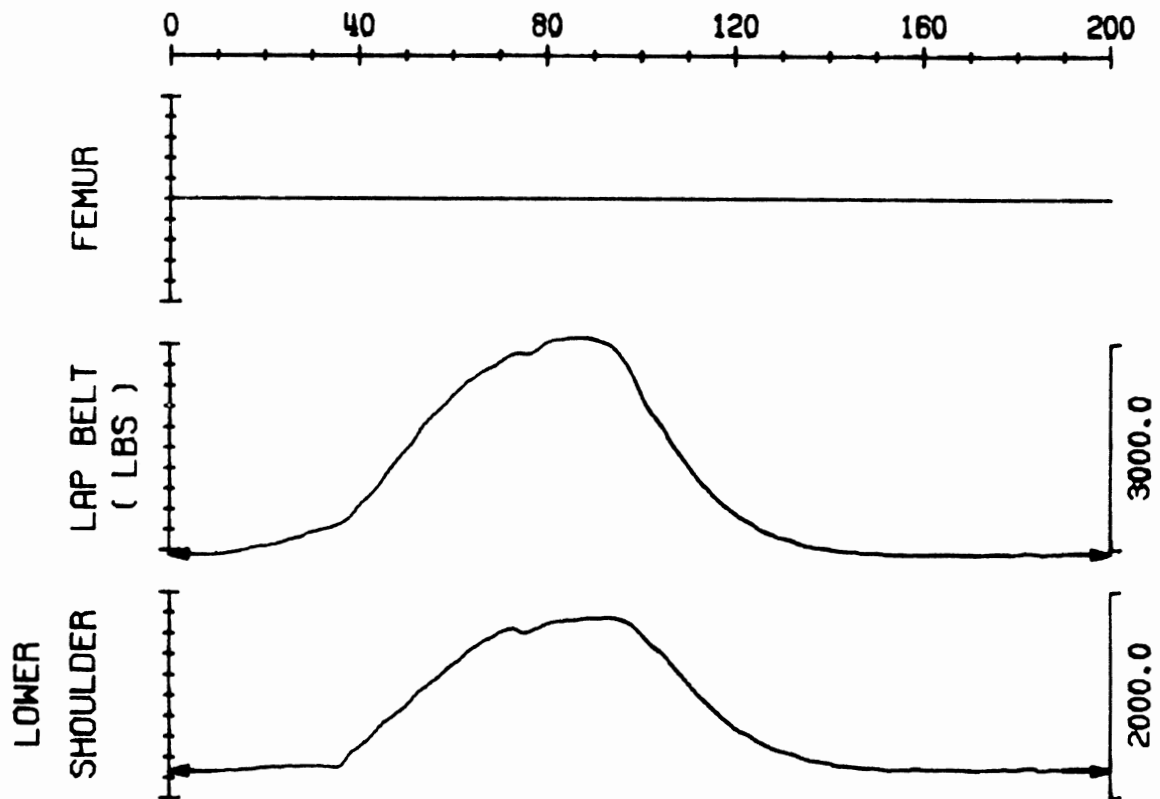


3-D TRANSLATIONS

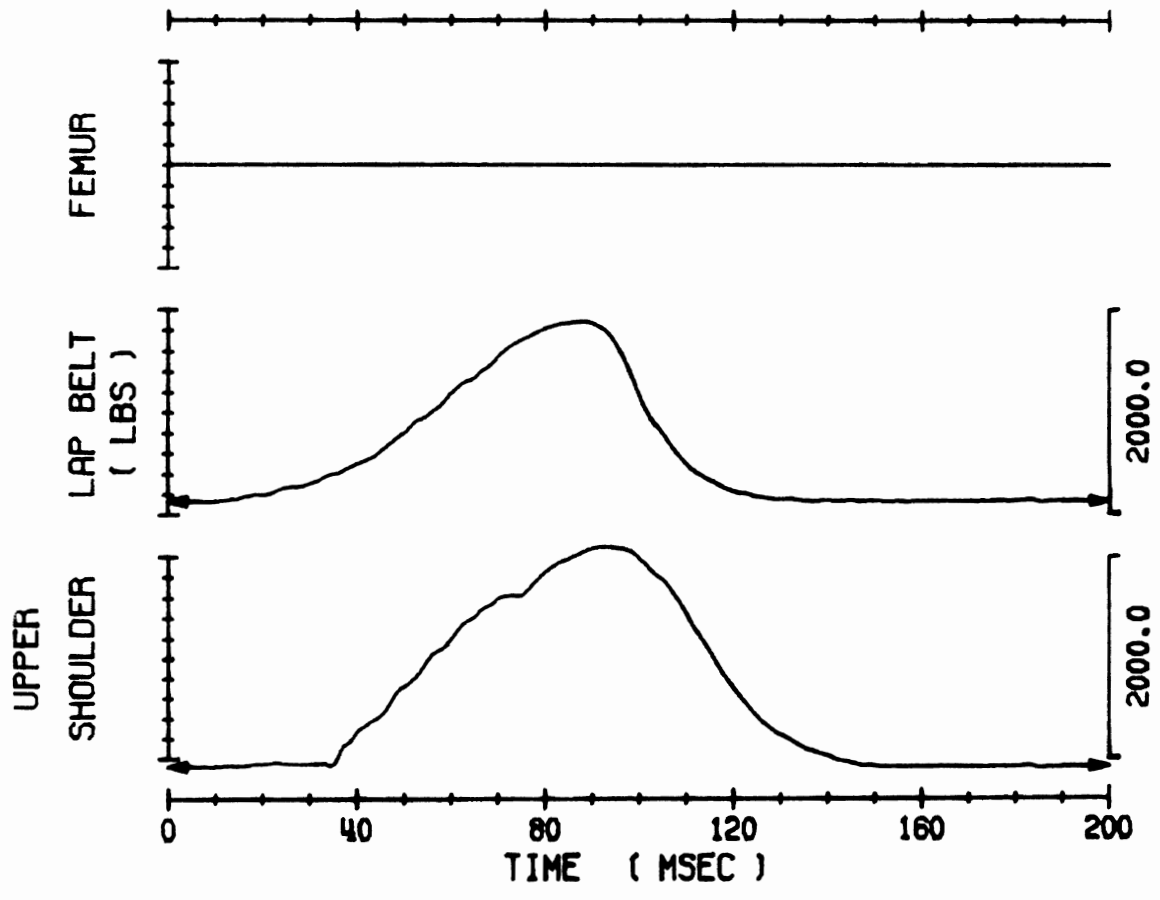


MEASURED ACCELERATIONS

RIGHT SIDE



LEFT SIDE



MEASURED FORCES

APPENDIX C
PART II
ANTHROPOMETRIC DUMMY PROCESSED DATA

TABLE OF CONTENTS

DUMMY RUNS

| | TEST NUMBER | SEVERITY | SUMMARY | SLED | BELT LOADS | INTERNAL PELVIS/THORAX | EXTERNAL PELVIS/THORAX | 3D ANGULAR ACC. & VEL. | 3D EULER ANGLES & RATES | INTERNAL HEAD TRIAX | 3D ACC. HEAD CG | 3D HEAD CG VEL. & POS. | FEMURS ONLY |
|-------|-------------|----------|---------|------|------------|------------------------|------------------------|------------------------|-------------------------|---------------------|-----------------|------------------------|-------------|
| DM3 X | A-888 | L | 157 | 158 | 162 | 160 | 163 | --- | --- | 161 | --- | --- | 159 |
| | A-889 | L | 165 | 166 | 170 | 168 | 171 | --- | --- | 169 | --- | --- | 167 |
| | A-890 | L | 173 | 174 | 178 | 176 | 179 | --- | --- | 177 | --- | --- | 175 |
| | A-891 | L | 181 | 182 | 186 | 184 | 187 | --- | --- | 185 | --- | --- | 183 |
| | A-892 | M | 189 | 190 | 194 | 192 | 195 | --- | --- | 193 | --- | --- | 191 |
| | A-893 | M | 197 | 198 | 202 | 200 | 203 | --- | --- | 201 | --- | --- | 199 |
| | A-894 | M | 205 | 206 | 210 | 208 | 211 | --- | --- | 209 | --- | --- | 207 |
| | A-895 | H | 213 | 214 | 218 | 216 | 219 | --- | --- | 217 | --- | --- | 215 |
| | A-896 | H | 221 | 222 | 226 | 224 | 227 | --- | --- | 225 | --- | --- | 223 |
| | A-897 | H | 229 | 230 | 234 | 232 | 235 | --- | --- | 233 | --- | --- | 231 |
| DM9 X | A-907 | L | 237 | 238 | 240 | --- | 239 | 241 | --- | --- | --- | --- | |
| | A-908 | L | 243 | 244 | 246 | --- | 245 | 247 | --- | --- | --- | --- | |
| | A-909 | L | 249 | 250 | 251 | --- | 252 | 253 | --- | --- | --- | --- | |
| | A-910 | L | 255 | 256 | 257 | --- | 258 | 259 | | | | | |
| | A-911 | M | 261 | 262 | 263 | --- | 264 | 265 | --- | --- | --- | --- | |
| | A-912 | M | 267 | 268 | 269 | --- | 270 | 271 | --- | --- | --- | --- | |
| | A-913 | H | 273 | 274 | 275 | --- | 276 | 277 | --- | 278 | --- | --- | |
| DUM | 76B007 | L | 279 | 280 | --- | 282 | 283 | 284 | 285 | 286 | 287 | 288 | |
| | 76B008 | L | 289 | 290 | 291 | 292 | 293 | 294 | 295 | 296 | 297 | 298 | |
| | 76B009 | L | 299 | 300 | 301 | 302 | 303 | 304 | 305 | 306 | 307 | 308 | |
| | 76B010 | M | 309 | 310 | 311 | 312 | 313 | 314 | 315 | 316 | 317 | 318 | |
| | 76B011 | M | 319 | 320 | 321 | 322 | 323 | 324 | 325 | 326 | 327 | 328 | |
| | 76B012 | M | 329 | 330 | 331 | 332 | 333 | 334 | 335 | 336 | 337 | 338 | |
| | 76B013 | H | 339 | 340 | 341 | 342 | 343 | 344 | 345 | 346 | 347 | 348 | |
| | 76B014 | H | 349 | 350 | 351 | 352 | 353 | 354 | 355 | 356 | 357 | 358 | |
| | 76B015 | H | 359 | 360 | 361 | 362 | 363 | 364 | 365 | 366 | 367 | 368 | |

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: A-889

SUBJECT: DEBK-L

9.5 G-LEVEL
 35.13 FT/MS
 15.3 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1138. | 617. | 1158. | 365. | 374. | 486. |
| (LBS) @ (MS) | 37.4 | 81.0 | 89.2 | 91.0 | 16.6 | 17.3 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 22. | -2. | 13. | -2. | 8. | -20. | 5. |
| (G'S) @ (MS) | 91.6 | 65.8 | 40.0 | 45.2 | 94.7 | 89.1 | 117.2 |
| GSI= | 70 | | | | | | |
| IN PELVIS ACC: | 24. | -3. | 8. | -23. | 2. | -4. | 2. |
| (G'S) @ | 69.1 | 80.3 | 113.0 | 66.7 | 143.4 | 119.3 | 104.0 |
| EX THORAX ACC: | 23. | -22. | 2. | -5. | 5. | -3. | 10. |
| (G'S) @ | 68.5 | 68.7 | 120.3 | 104.3 | 120.3 | 77.9 | 113.1 |
| GSI= | 70 | | | | | | |
| EX PELVIS ACC: | 0. | -89. | 78. | 0. | 0. | -8. | 10. |
| (G'S) @ | 0.0 | 46.0 | 35.9 | 0.0 | 0.0 | 156.3 | 153.2 |

.....

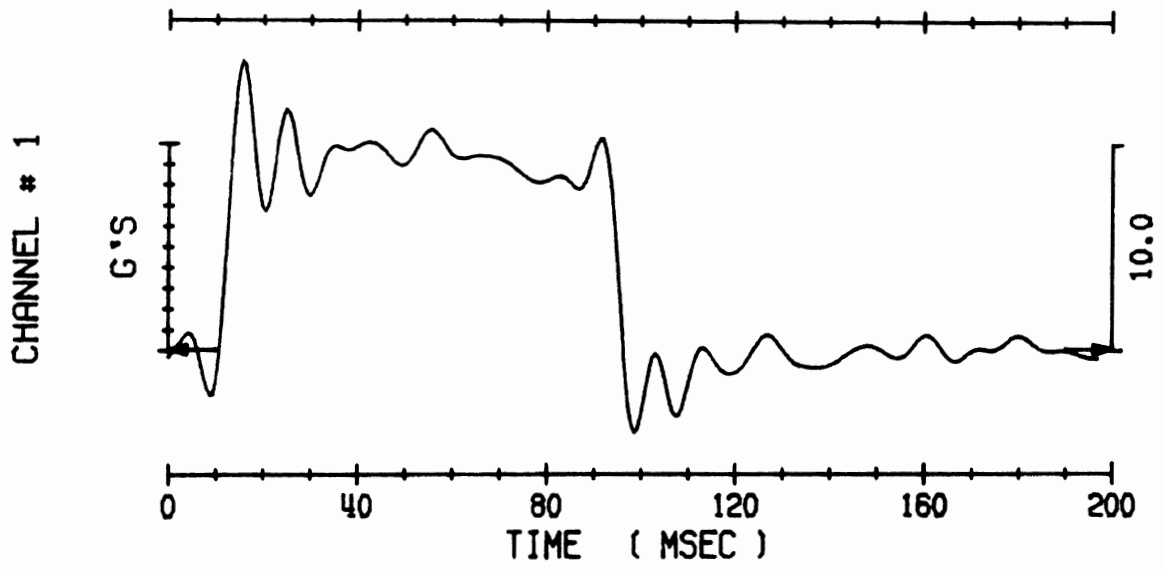
| | | | | | | | |
|-----------------|-----|-----|-----|-----|-----|-----|-----|
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| BUCKET ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |

.....

| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

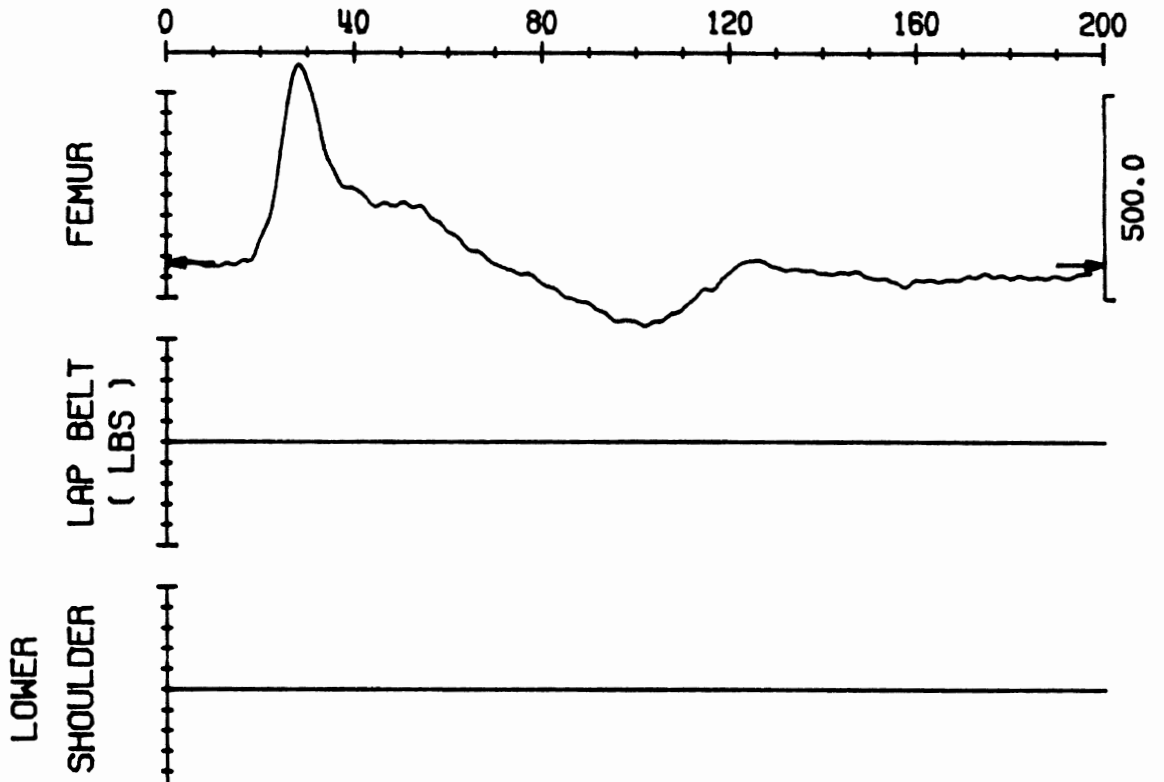
FILE: 213

A-888-1: DM3X-L

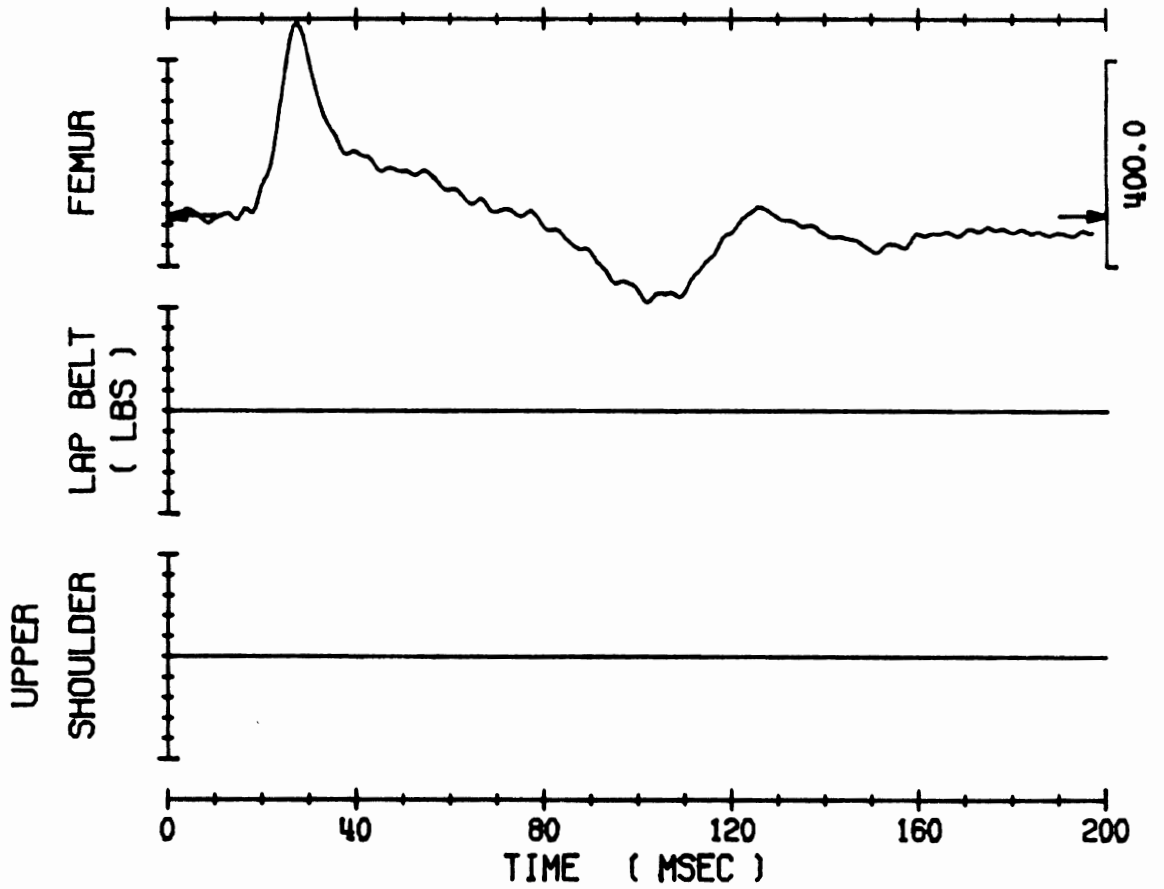


SLED DECLERATION

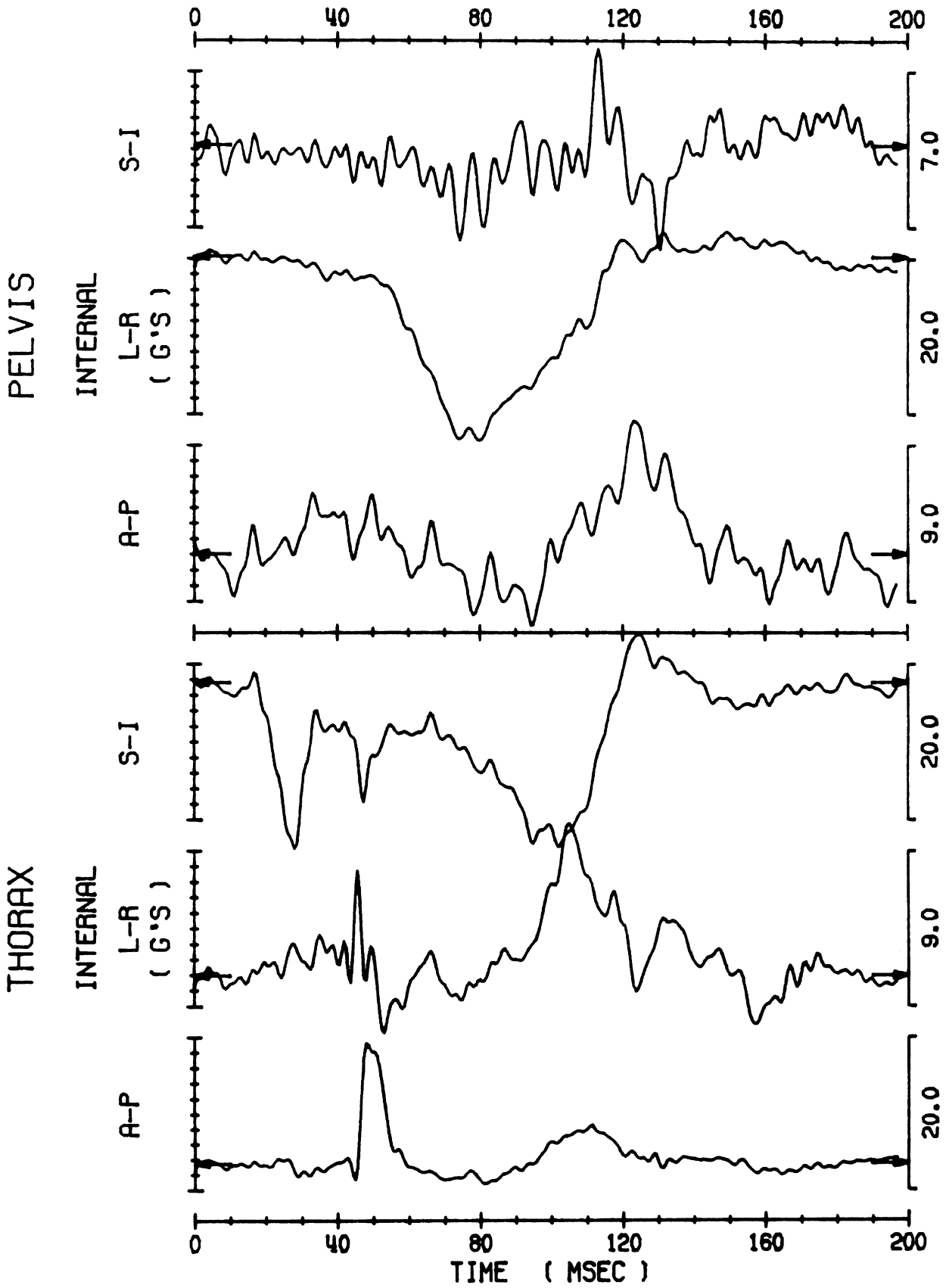
RIGHT SIDE



LEFT SIDE



MEASURED FORCES



MEASURED ACCELERATIONS

RESULTANT

GSI = 139

HIC = 118

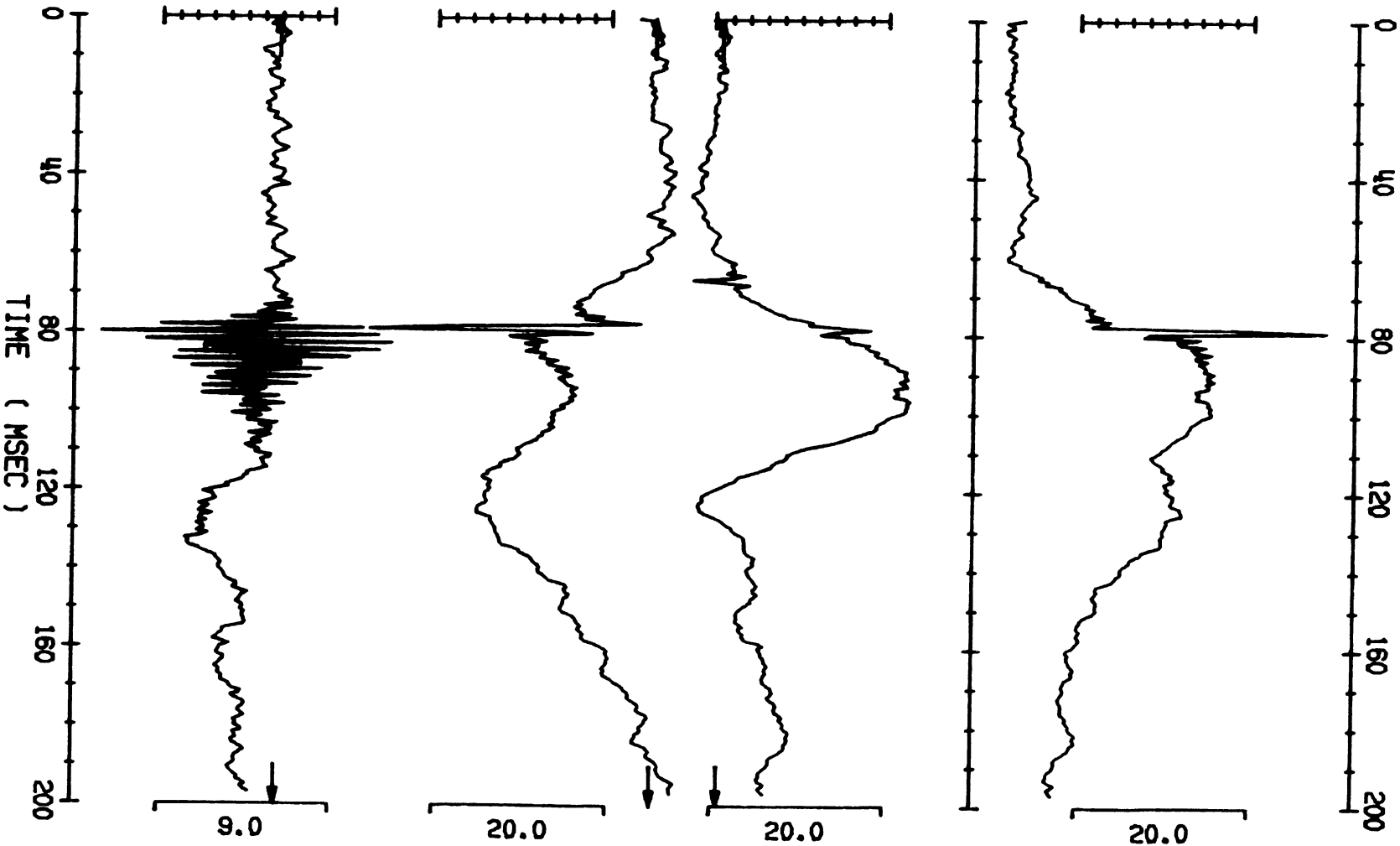
HEAD STD TRIAX

READINGS

A-P

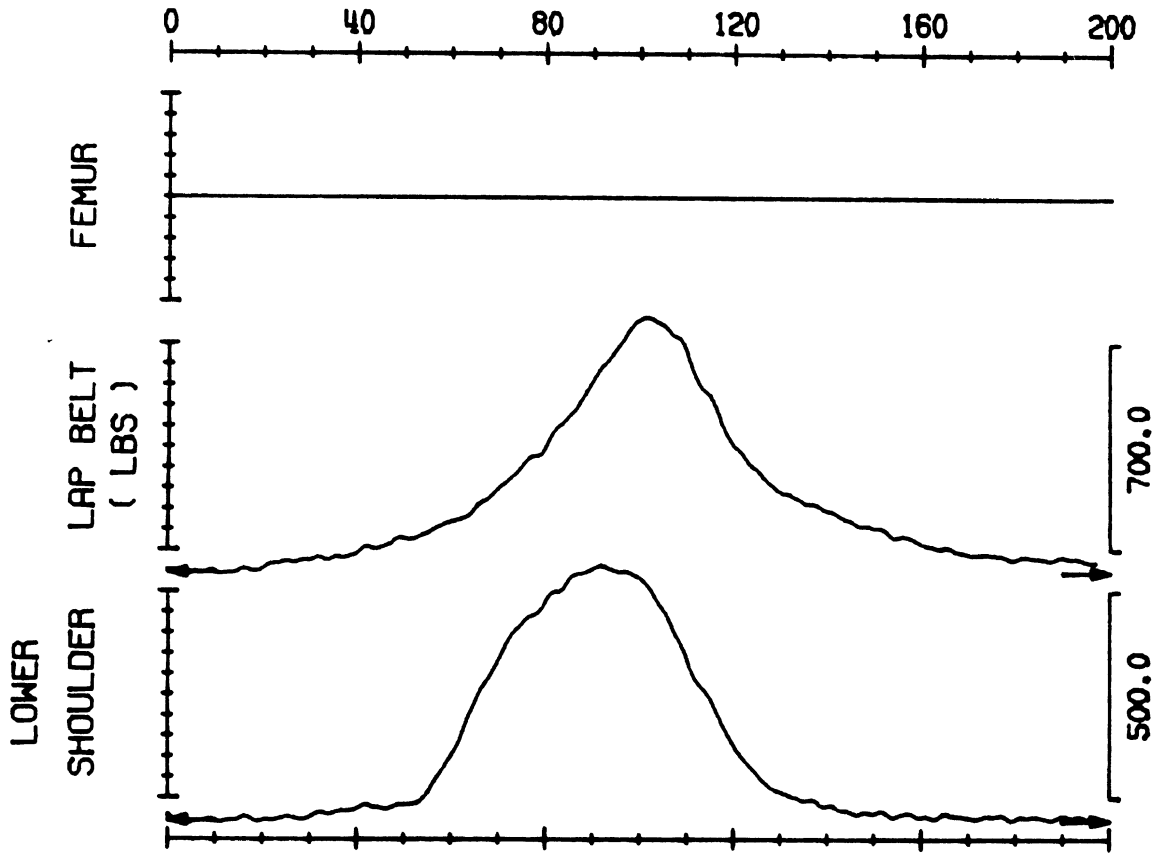
L-R
(G'S)

S-I

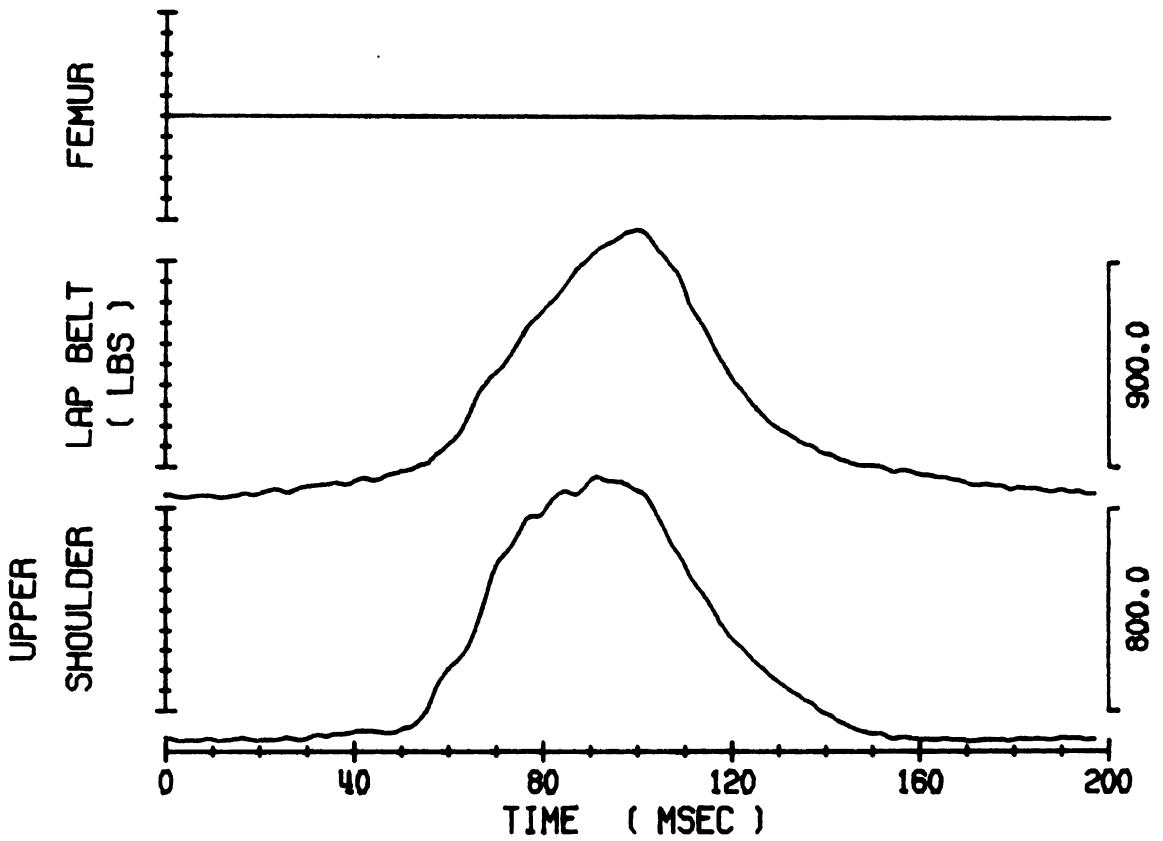


MEASURED ACCELERATIONS

RIGHT SIDE



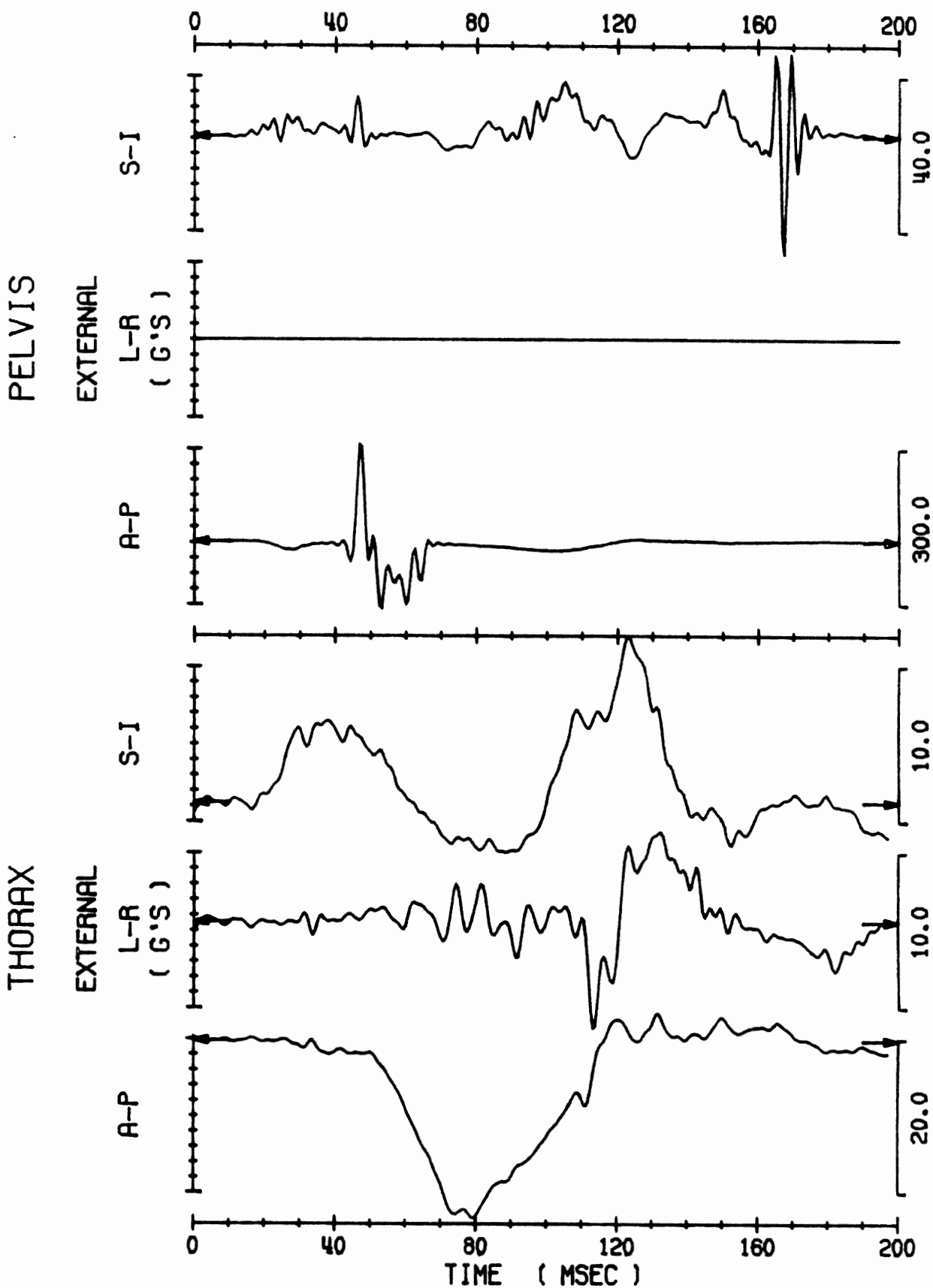
LEFT SIDE



MEASURED FORCES

FILE: 218

A-888-2: DM3X-L



MEASURED ACCELERATIONS

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: A-889
=====

SUBJECT: D43X-L

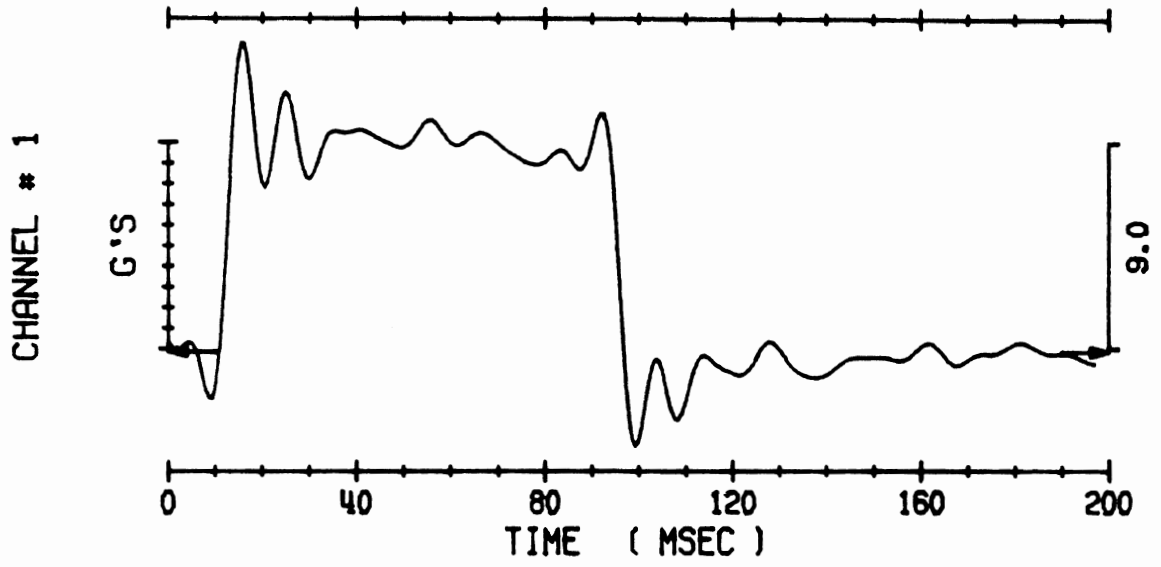
9.3 G-LEVEL
85. MS LONG
15.5 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 901. | 530. | 956. | 772. | 393. | 444. |
| (LBS) @ (MS) | 82.2 | 82.2 | 89.7 | 92.2 | 17.8 | 17.3 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 20. | -3. | 7. | -1. | 7. | -17. | 5. |
| (G'S) @ (MS) | 94.1 | 62.9 | 100.5 | 46.3 | 97.2 | 30.5 | 114.3 |
| GSI= | 42 | | | | | | |
| IN PELVIS ACC: | 18. | -2. | 9. | -17. | 3. | -3. | 3. |
| (G'S) @ | 59.1 | 77.6 | 112.2 | 58.3 | 123.0 | 82.1 | 155.6 |
| EX THORAX ACC: | 17. | -17. | 3. | -3. | 3. | -2. | 12. |
| (G'S) @ | 61.0 | 58.9 | 123.4 | 99.7 | 116.2 | 77.0 | 110.7 |
| GSI= | 52 | | | | | | |
| EX PELVIS ACC: | 0. | -15. | 4. | 0. | 0. | 1. | 36. |
| (G'S) @ | 0.0 | 89.7 | 116.6 | 0.0 | 0.0 | 24.1 | 40.1 |
| | | | | | | | |
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| NECK ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

FILE: 219

A-889-1: DM3X-L

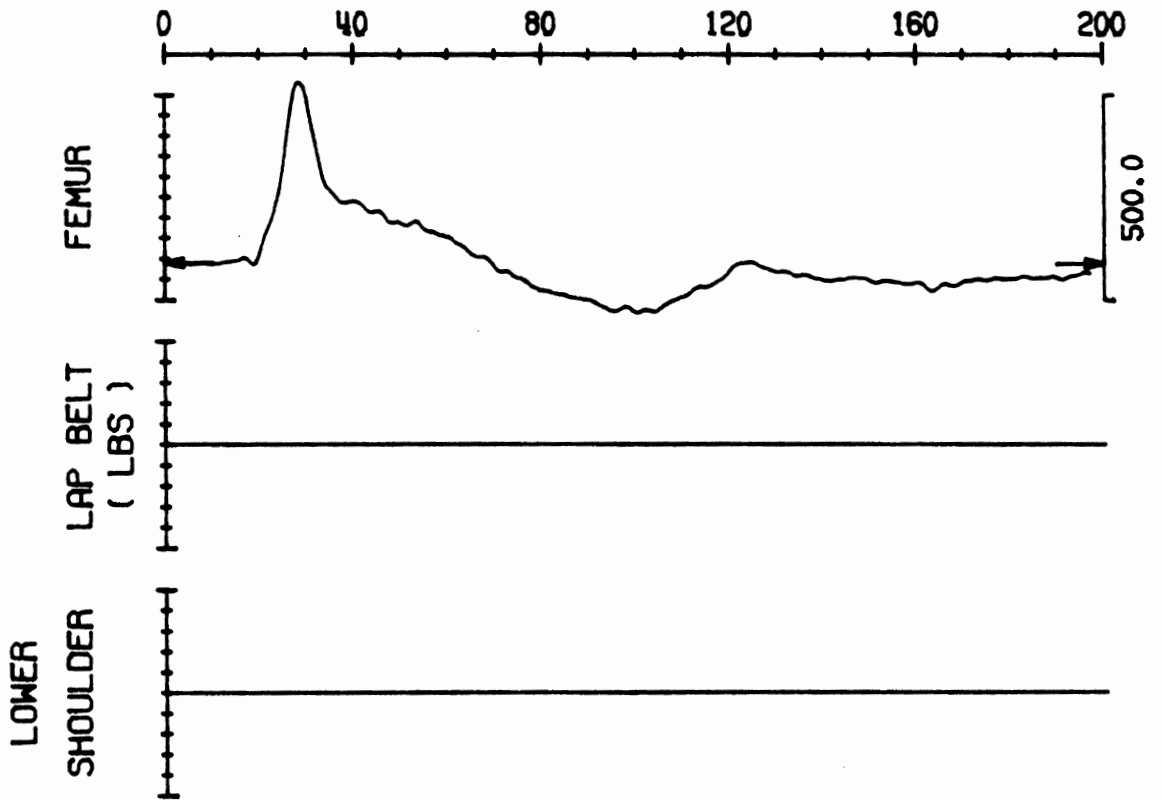


SLED DECLERATION

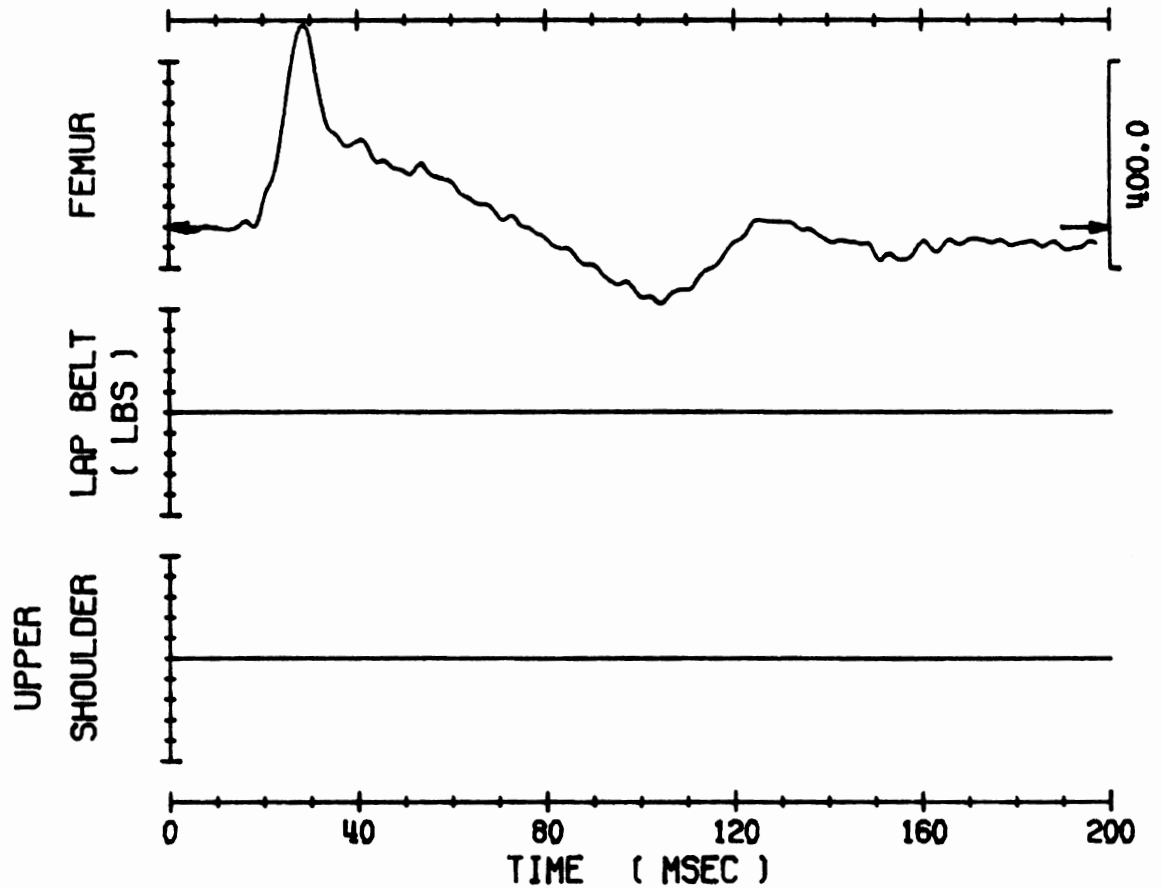
FILE: 220

A-889-1: DM3X-L

RIGHT SIDE



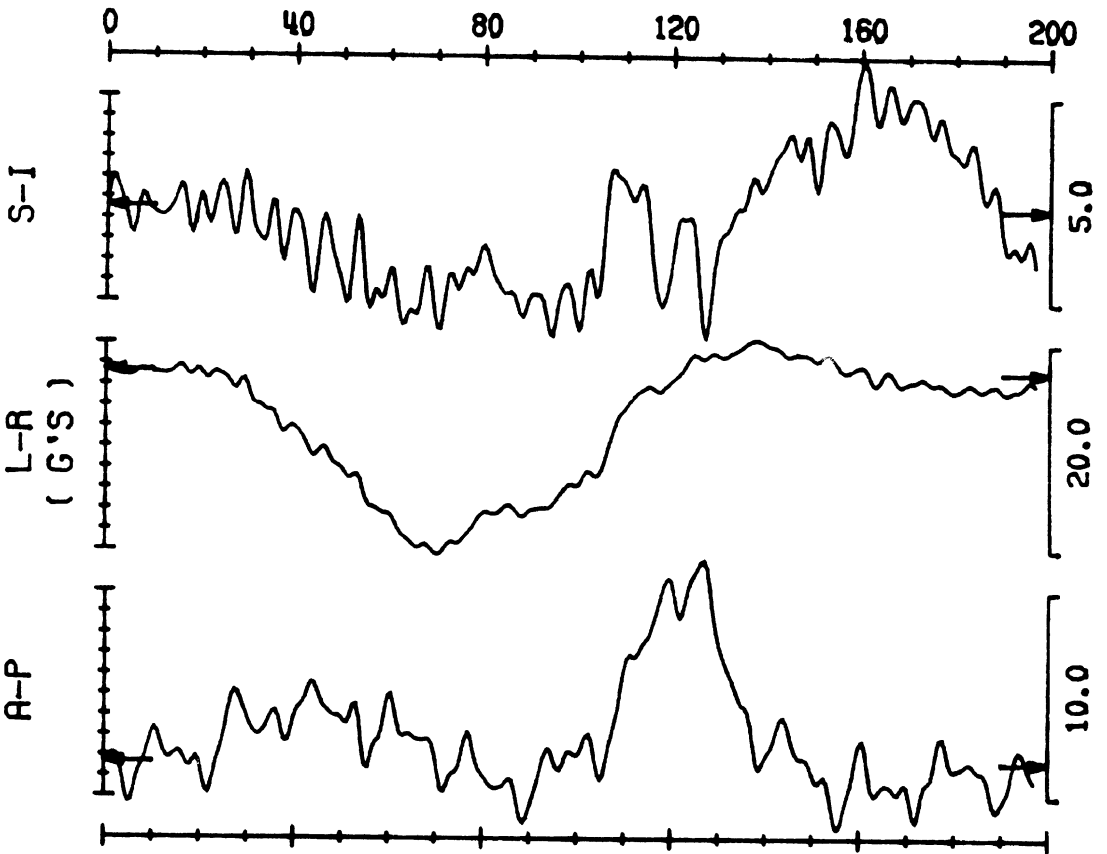
LEFT SIDE



MEASURED FORCES

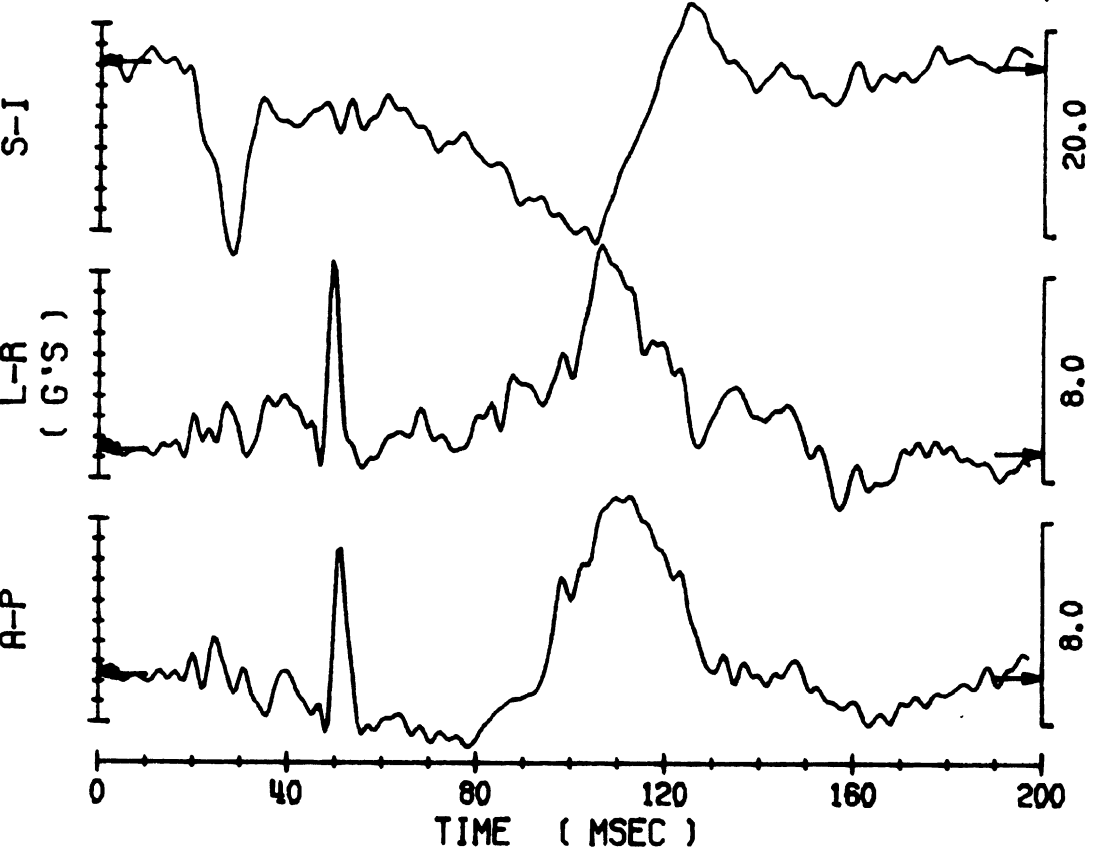
PELVIS

INTERNAL



THORAX

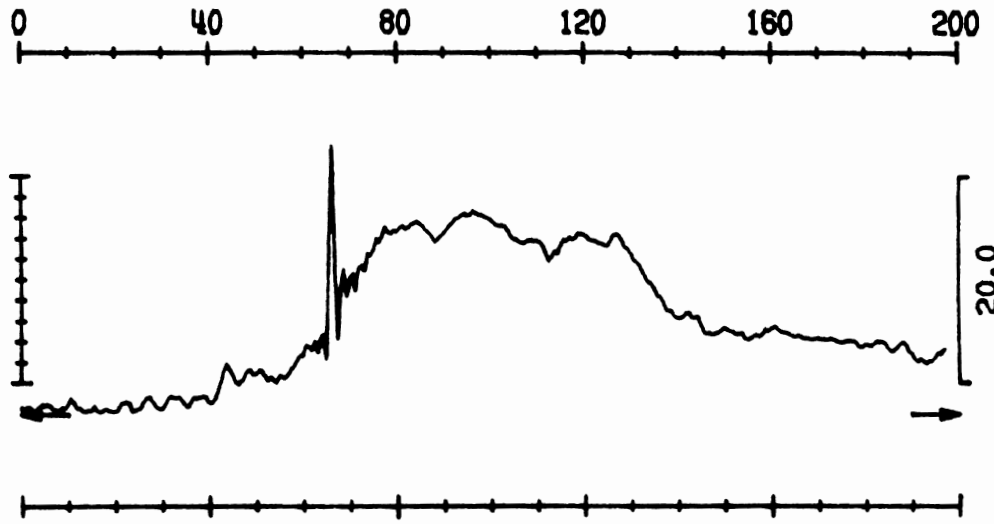
INTERNAL



MEASURED ACCELERATIONS

RESULTANT

GSI = 95
HIC = 81



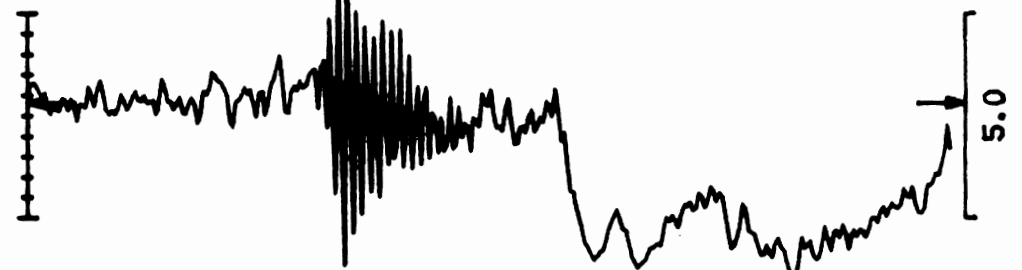
HEAD STD TRIAX

READINGS

L-R
(G'S)



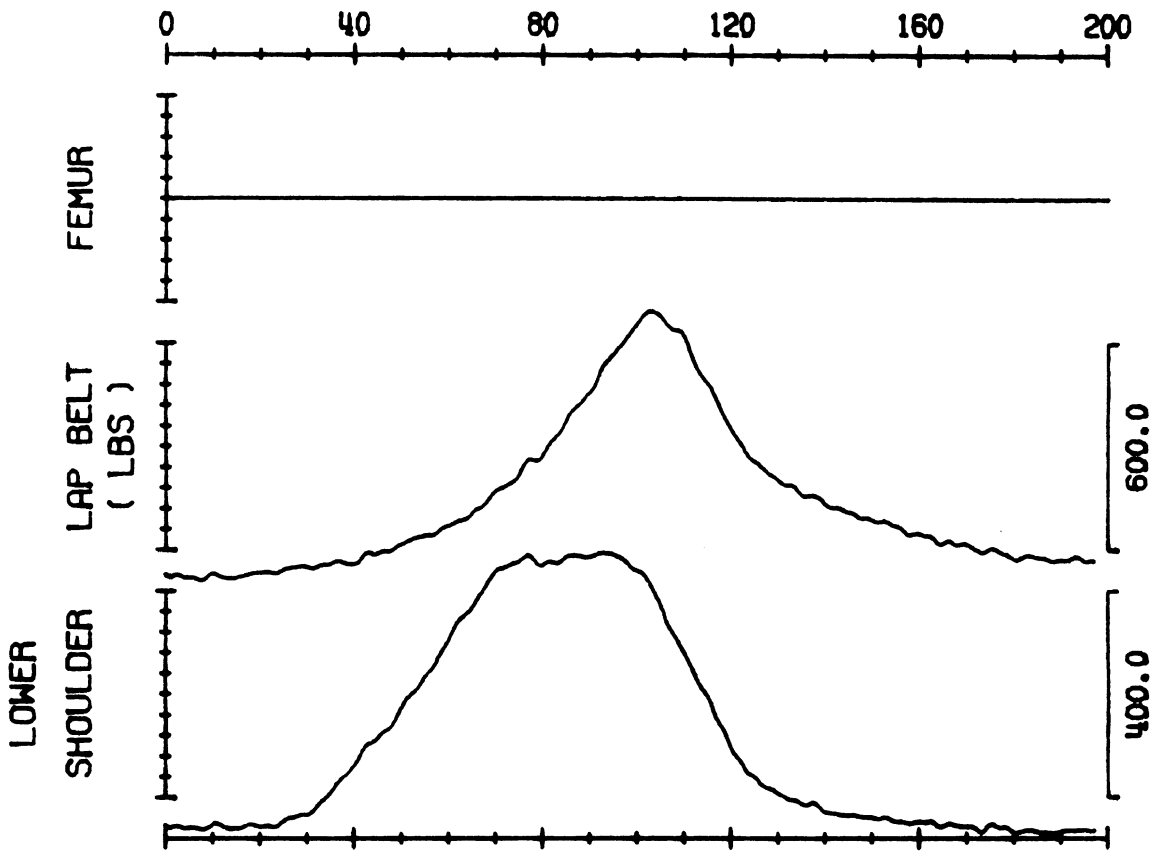
A-P



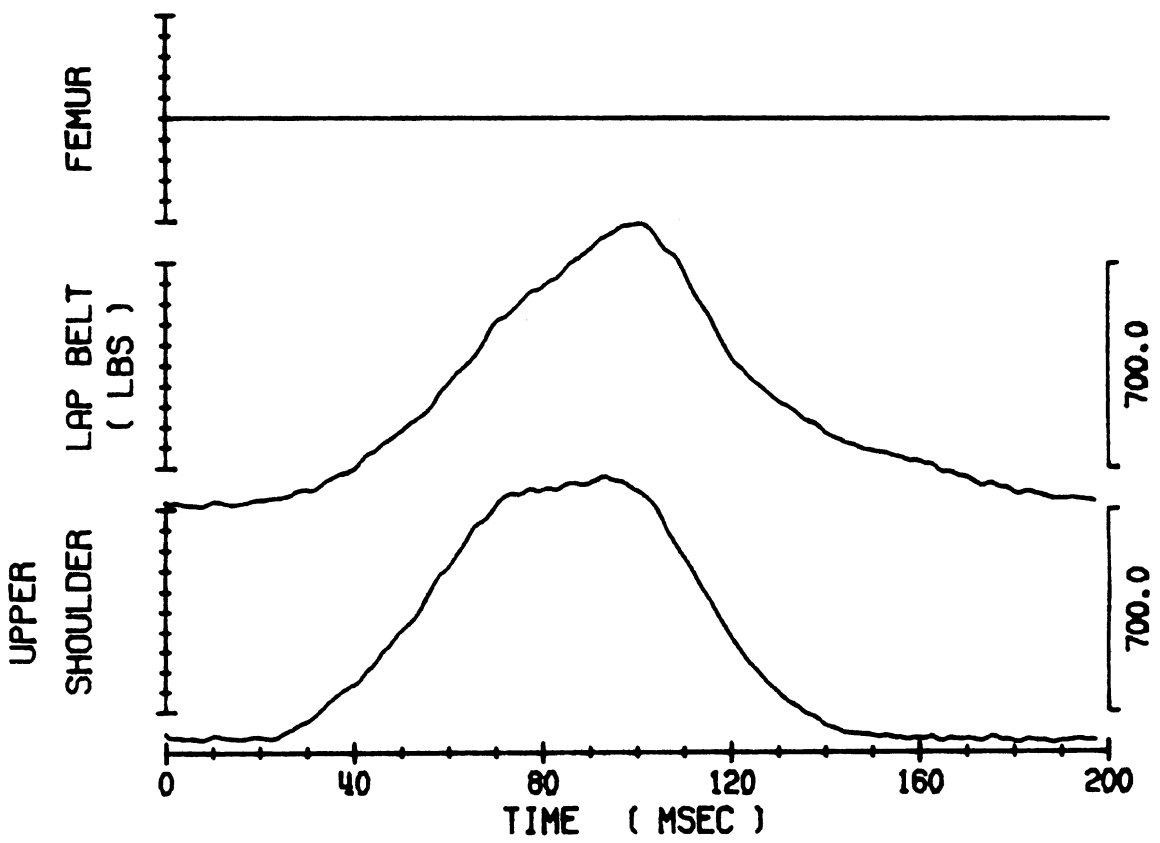
TIME (MSEC)

MEASURED ACCELERATIONS

RIGHT SIDE

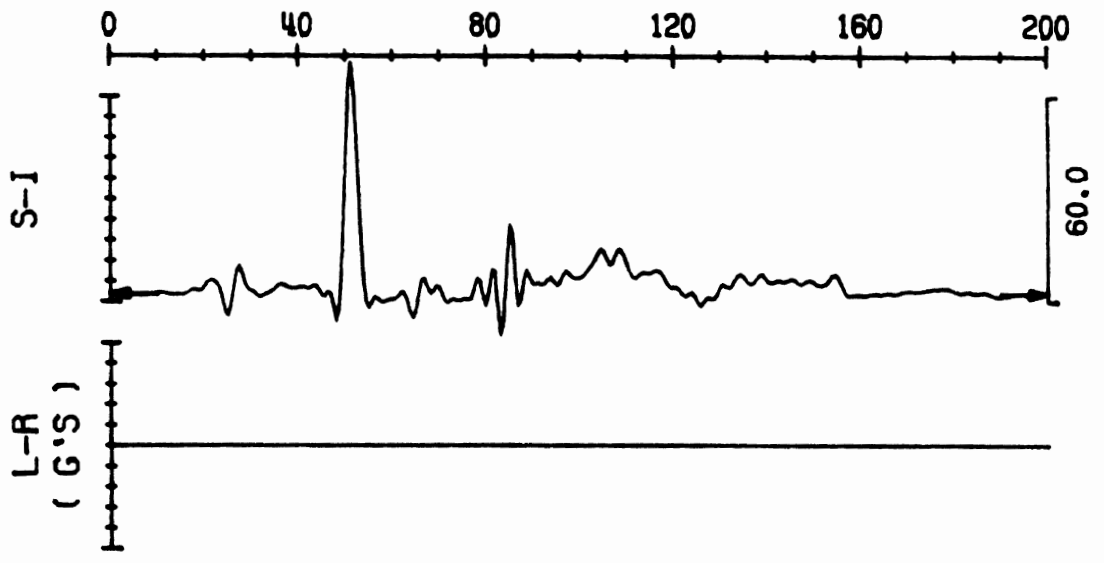


LEFT SIDE

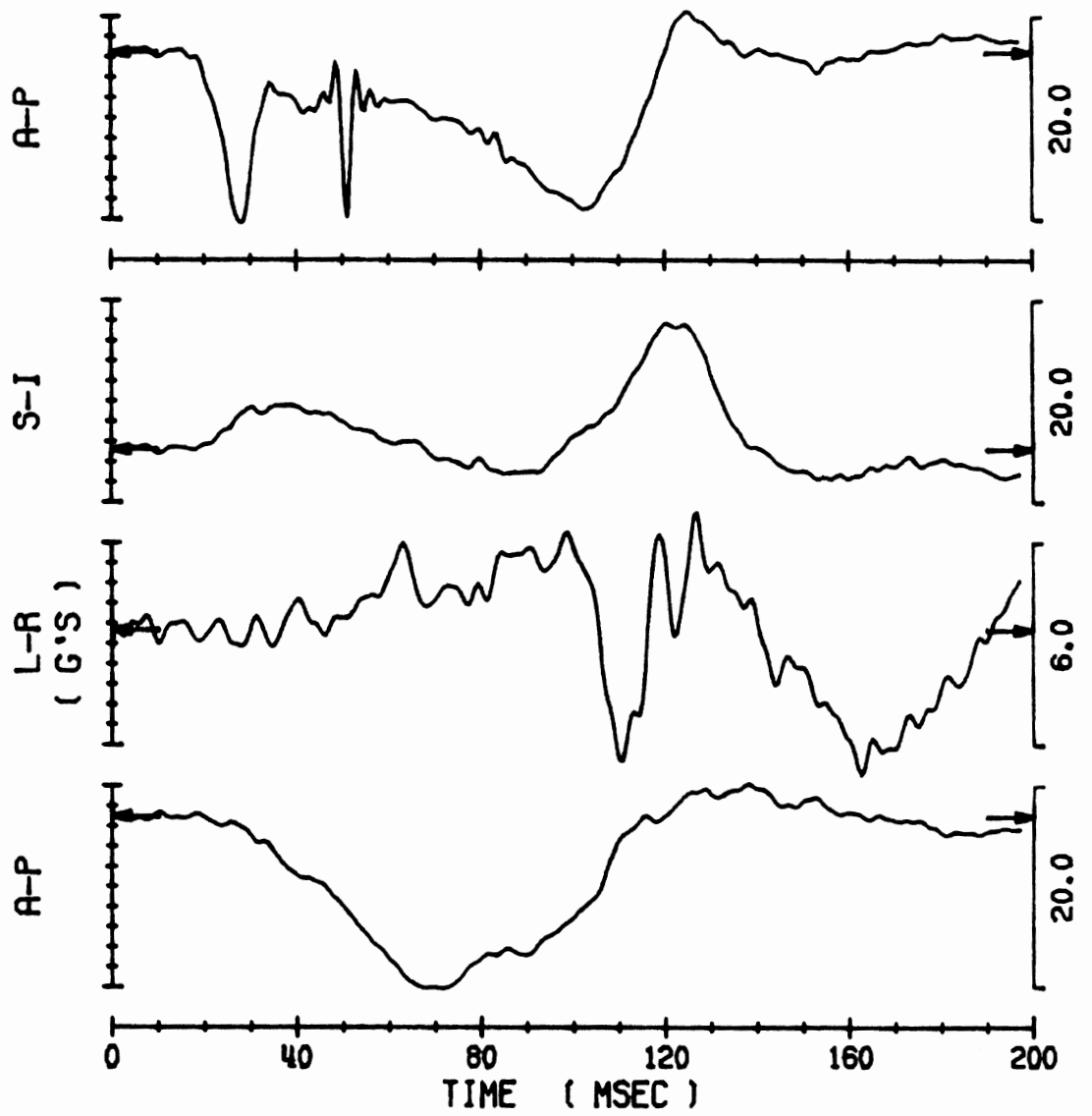


MEASURED FORCES

PELVIS



THORAX



MEASURED ACCELERATIONS

C-172

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: A-890
=====

SUBJECT: DBX-L

3.5 G-LEVEL
85. MS LONG
15.3 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1106. | 665. | 1112. | 909. | 369. | 499. |
| (LBS) @ (MS) | 80.0 | 82.1 | 89.0 | 90.3 | 16.5 | 20.9 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 25. | -1. | 11. | -2. | 5. | -23. | 5. |
| (G'S) @ (MS) | 140.2 | 156.0 | 141.1 | 152.9 | 138.1 | 91.2 | 140.2 |
| GSI= | 62 | | | | | | |
| IN PELVIS ACC: | 24. | -3. | 6. | -23. | 3. | -3. | 3. |
| (G'S) @ | 64.6 | 83.0 | 114.5 | 71.8 | 126.1 | 72.5 | 105.5 |
| EX THORAX ACC: | 24. | -23. | 5. | -4. | 2. | -3. | 10. |
| (G'S) @ | 64.6 | 71.7 | 113.3 | 106.4 | 116.9 | 79.5 | 114.7 |
| GSI= | 79 | | | | | | |
| EX PELVIS ACC: | 0. | -18. | 98. | 0. | 0. | -51. | 65. |
| (G'S) @ | 0.0 | 92.5 | 140.7 | 0.0 | 0.0 | 139.4 | 143.1 |

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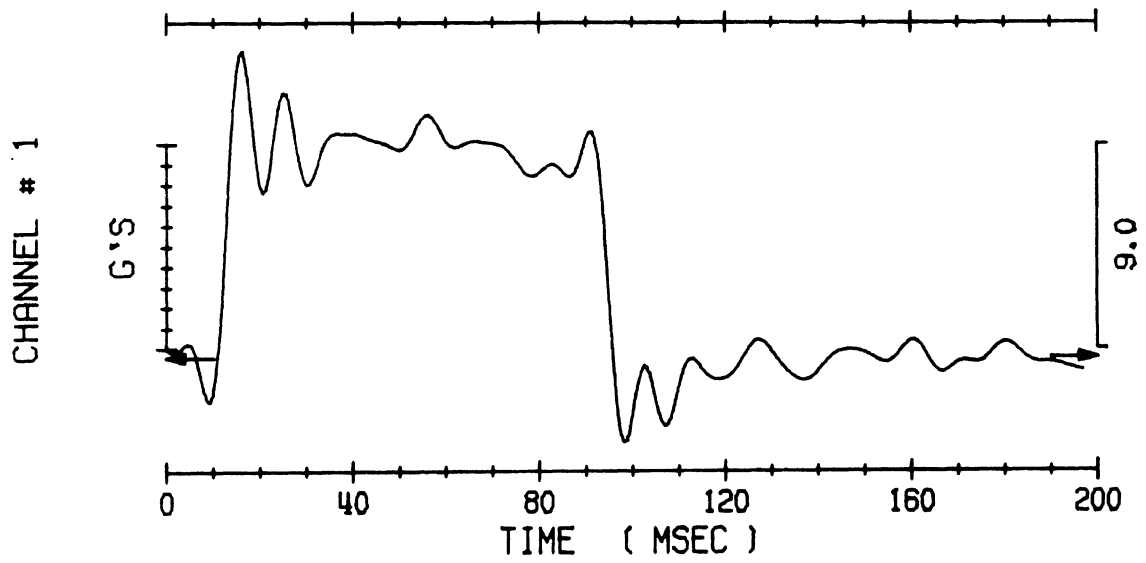
| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |

.....

| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

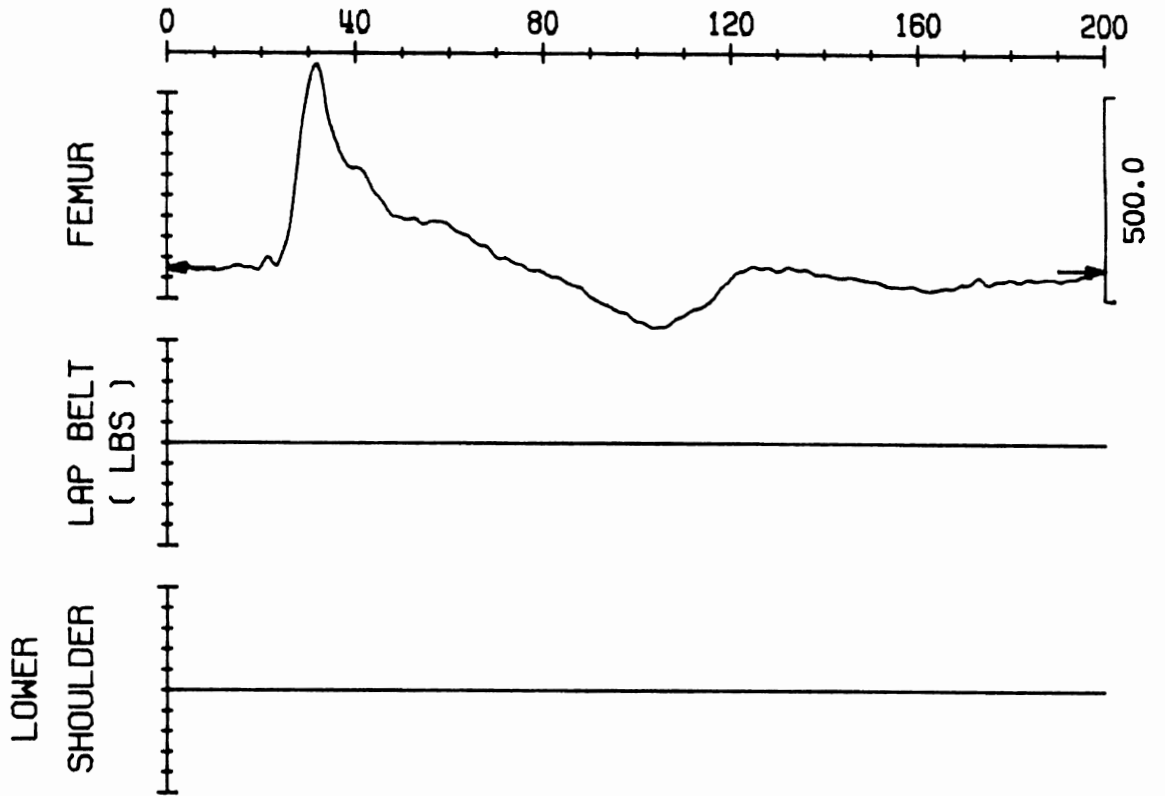
FILE: 225

A-890-1: DM3X-L

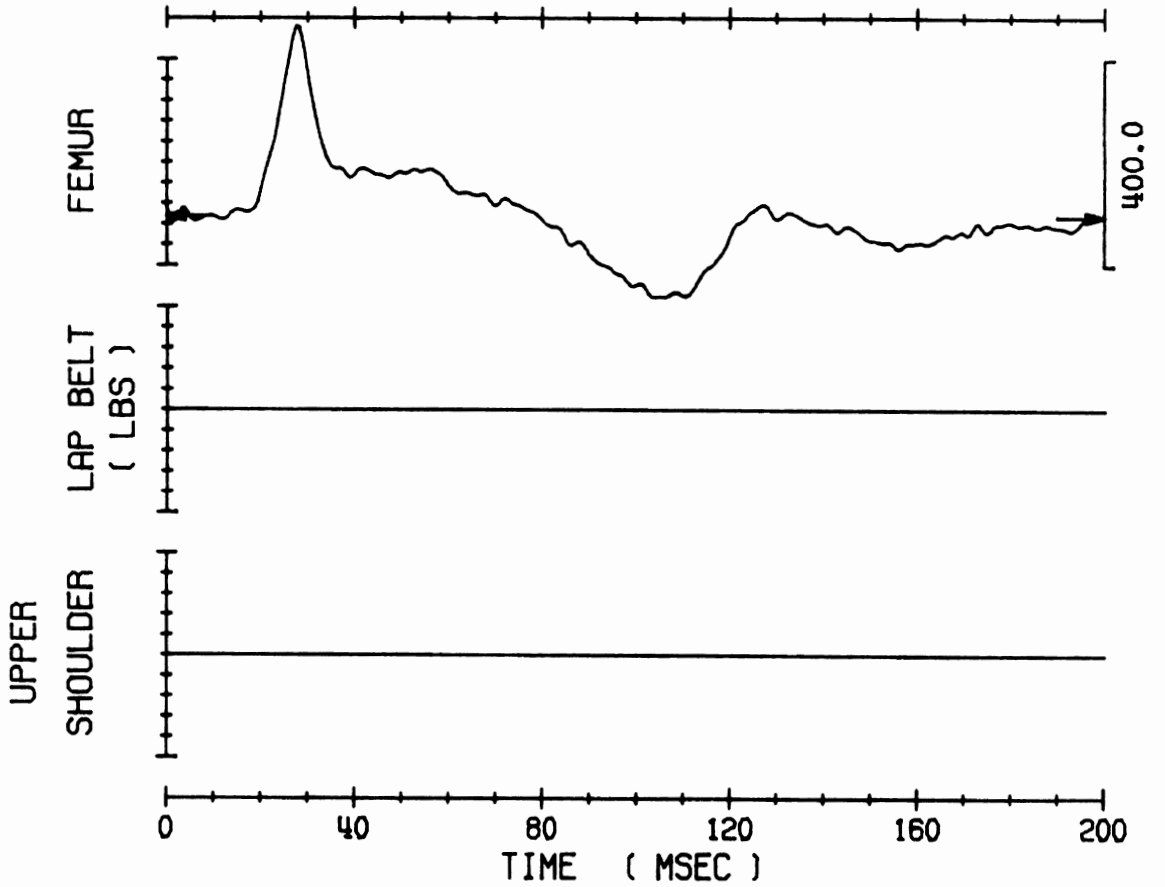


SLED DECELERATION

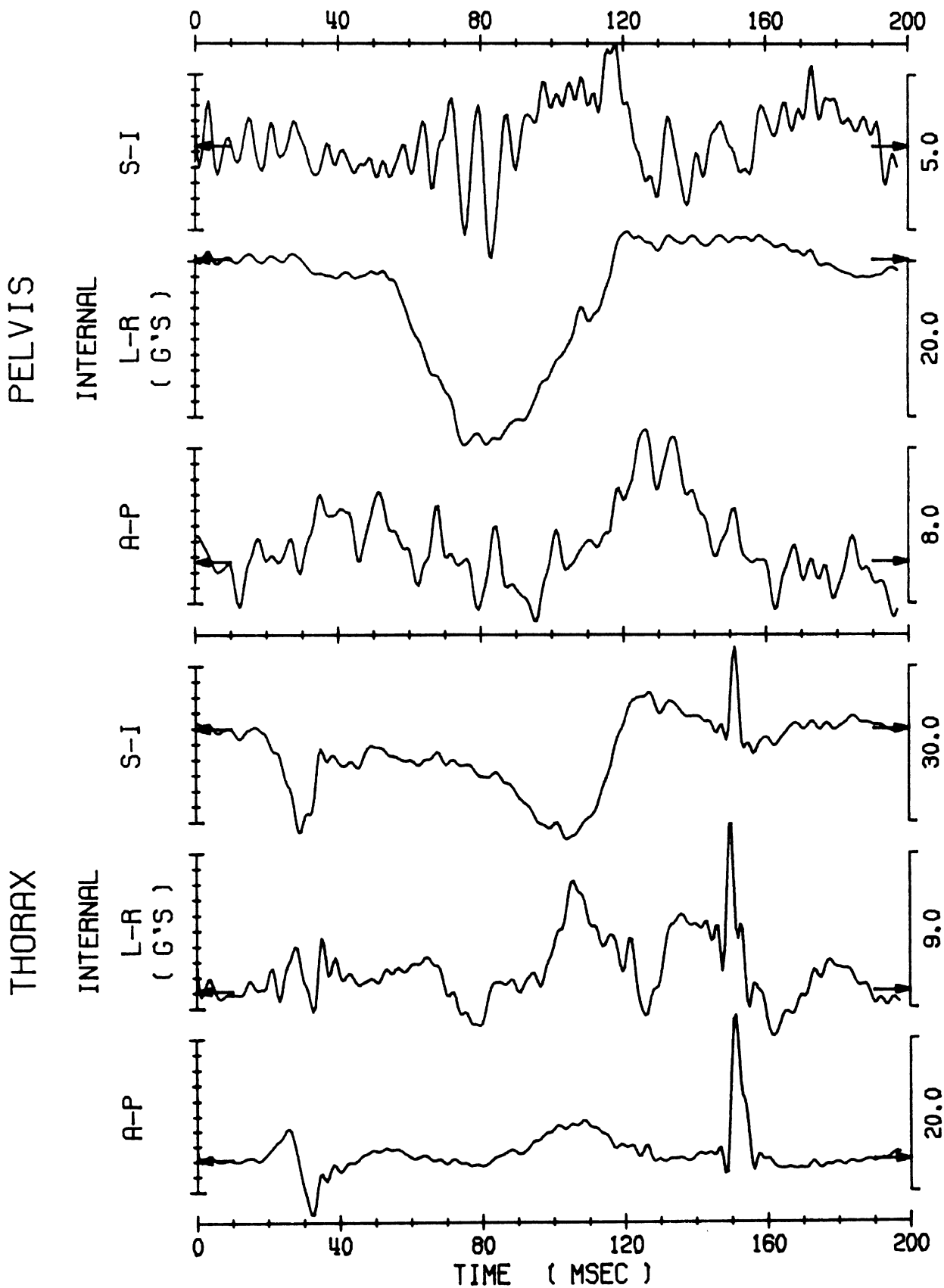
RIGHT SIDE



LEFT SIDE



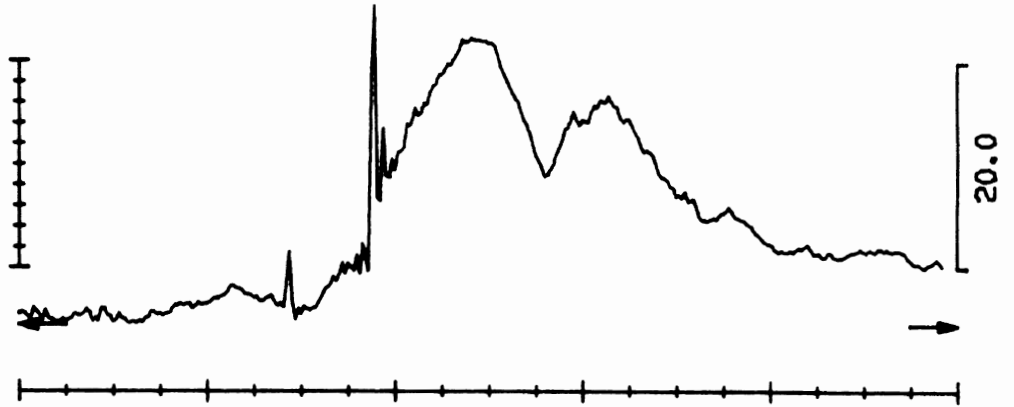
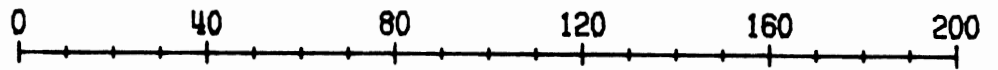
MEASURED FORCES



MEASURED ACCELERATIONS

RESULTANT

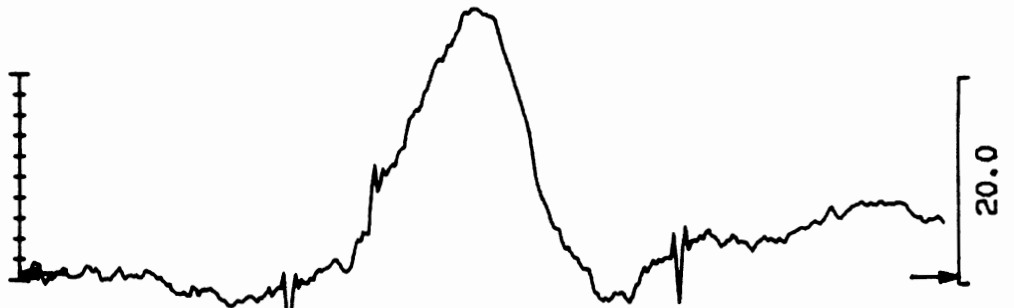
GSI = 147
HIC = 123



HEAD STD TRIAX

READINGS
L-R
(G'S)

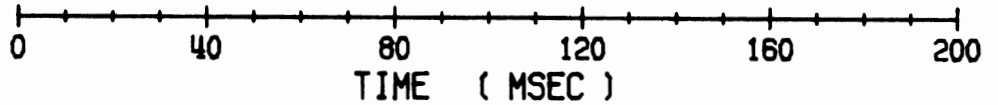
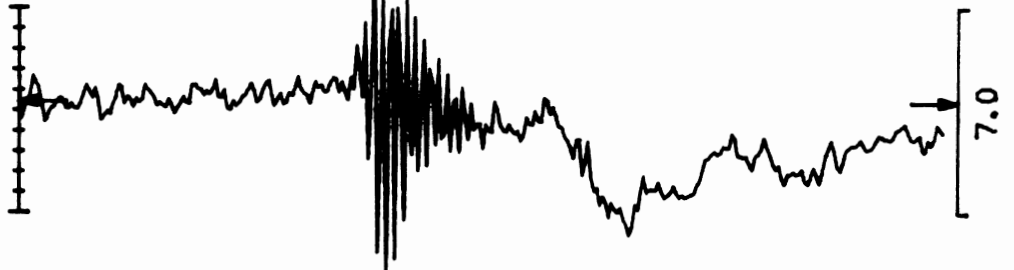
S-I



L-R



A-P



MEASURED ACCELERATIONS

LEFT SIDE

RIGHT SIDE

UPPER
SHOULDER

LAP BELT
(LBS)

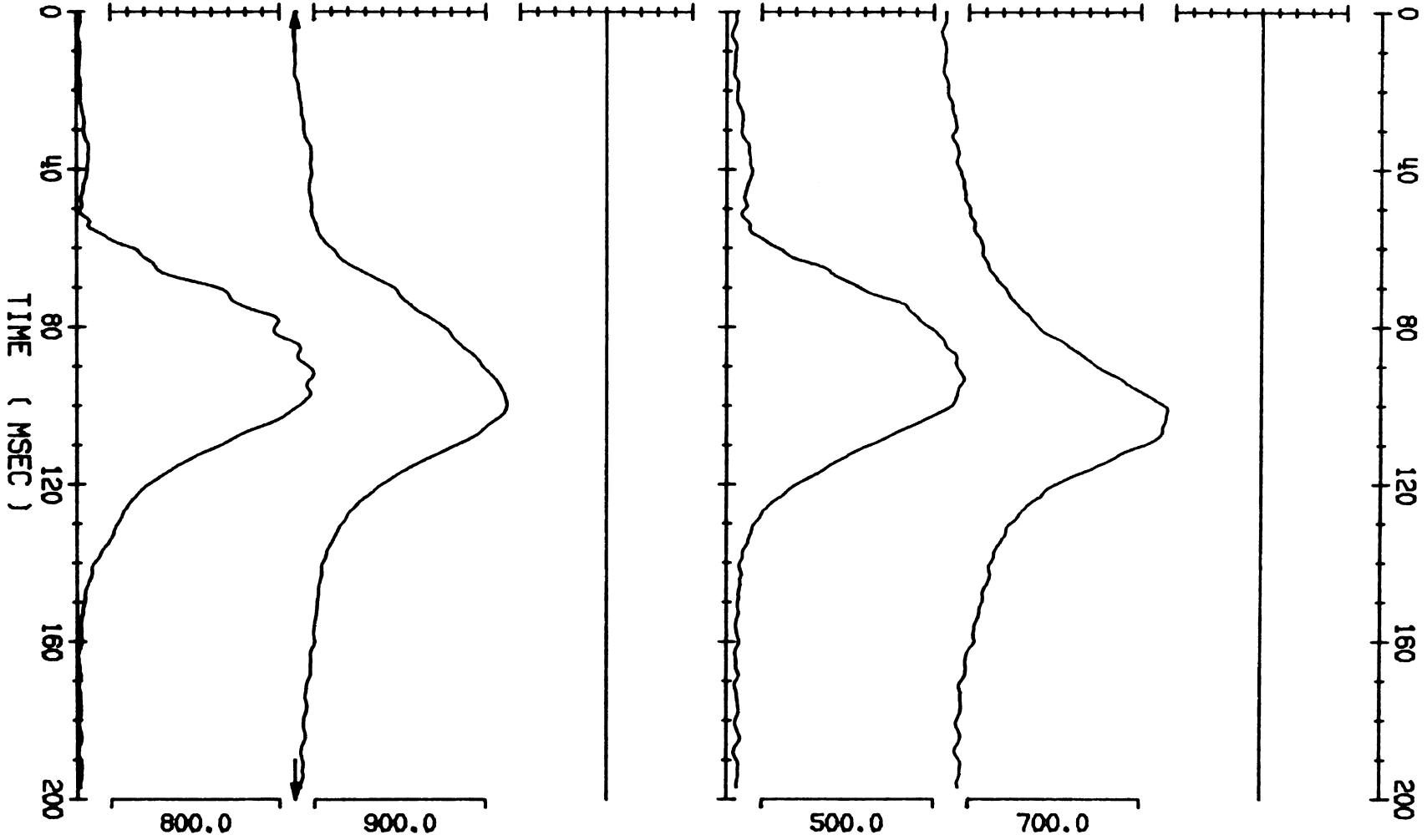
FEMUR

LOWER
SHOULDER

LAP BELT
(LBS)

FEMUR

MEASURED FORCES

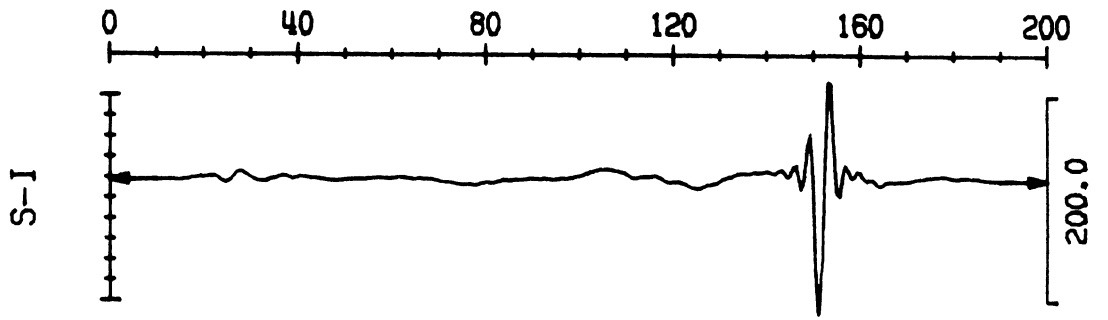


FILE: 229

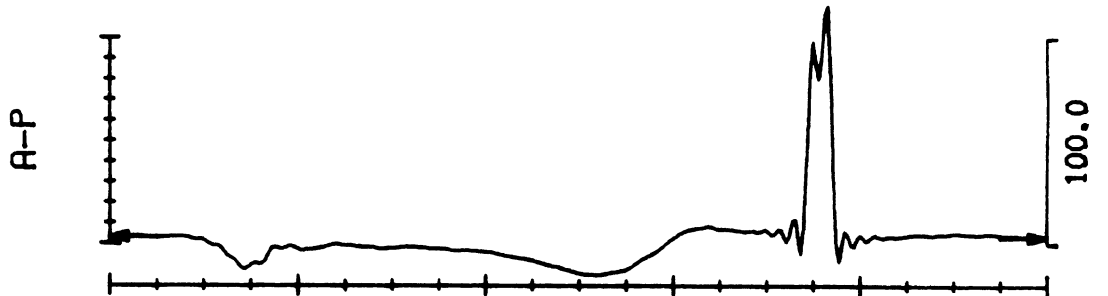
A-890-2: DM3X-L

PELVIS

EXTERNAL

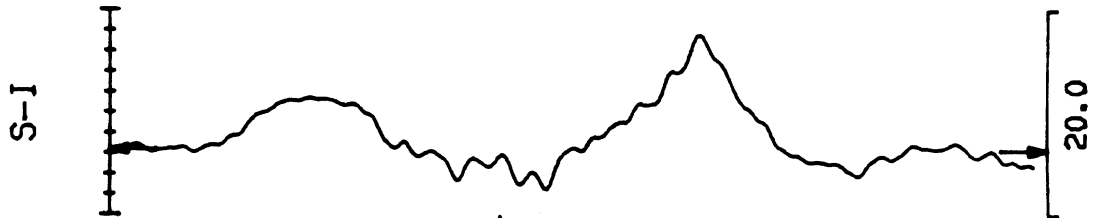


L-R
(G'S)

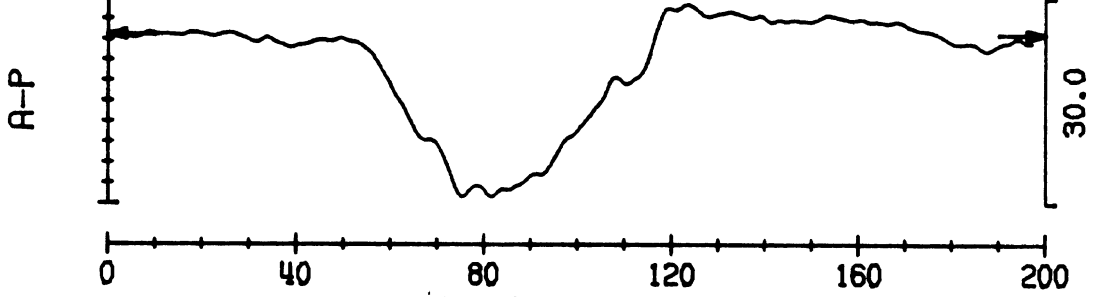
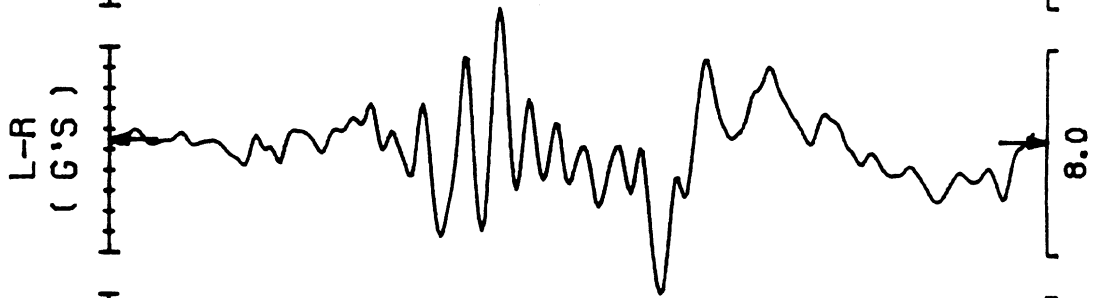


THORAX

EXTERNAL



L-R
(G'S)



TIME (MSEC)

MEASURED ACCELERATIONS

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: A-891

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SUBJECT: Dn3X-L

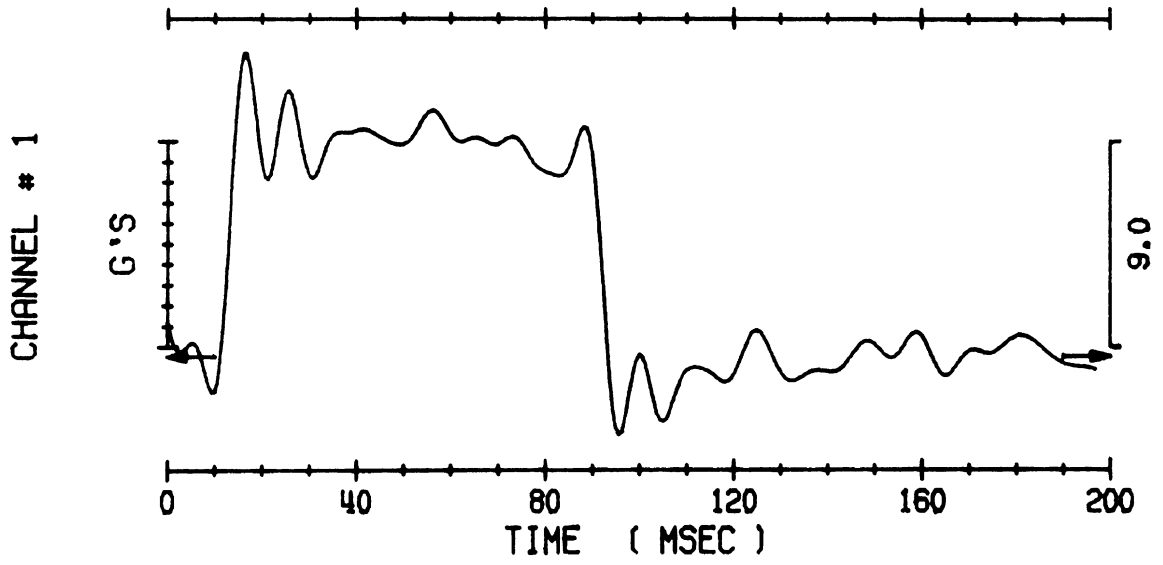
9.6 G-LEVEL
82. MS LONG
15.8 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1123. | 625. | 1056. | 735. | 449. | 492. |
| (LBS) @ (MS) | 83.7 | 86.2 | 86.2 | 94.3 | 17.4 | 20.5 |

| | RESULTANT PEAK | (A-B) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 36. | -4. | 6. | -1. | 24. | -17. | 6. |
| (G'S) @ (MS) | 32.4 | 35.8 | 105.5 | 116.2 | 32.4 | 19.1 | 117.2 |
| GSI= | 63 | | | | | | |
| IN PELVIS ACC: | 24. | -4. | 4. | -5. | 2. | -23. | 2. |
| (G'S) @ | 68.7 | 87.8 | 125.1 | 77.3 | 113.4 | 75.4 | 136.4 |
| EX THORAX ACC: | 23. | -22. | 4. | -3. | 3. | -4. | 7. |
| (G'S) @ | 74.9 | 74.9 | 117.3 | 113.3 | 130.3 | 85.3 | 116.9 |
| GSI= | 71 | | | | | | |
| EX PELVIS ACC: | 0. | -66. | 4. | 0. | 0. | 2. | 65. |
| (G'S) @ | 0.0 | 32.9 | 121.1 | 0.0 | 0.0 | 27.3 | 32.3 |
| | | | | | | | |
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| BULFR ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

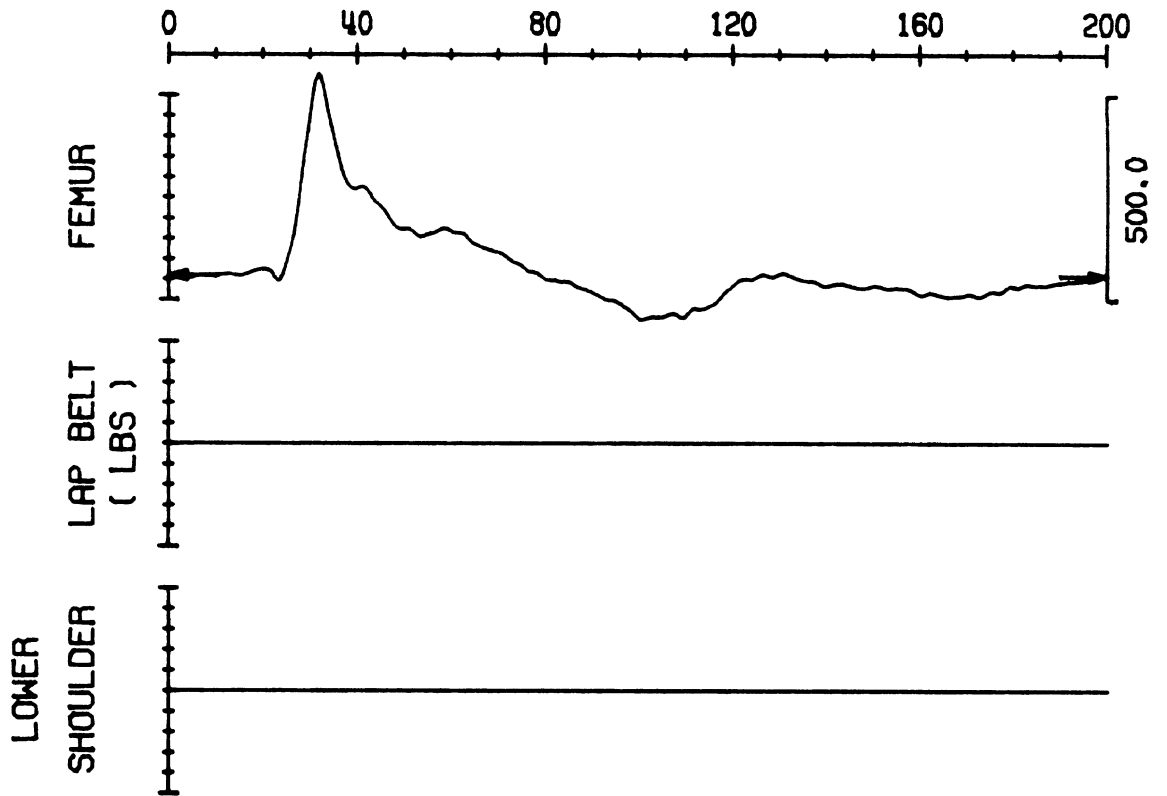
FILE: 231

A-891-1: DM3X-L

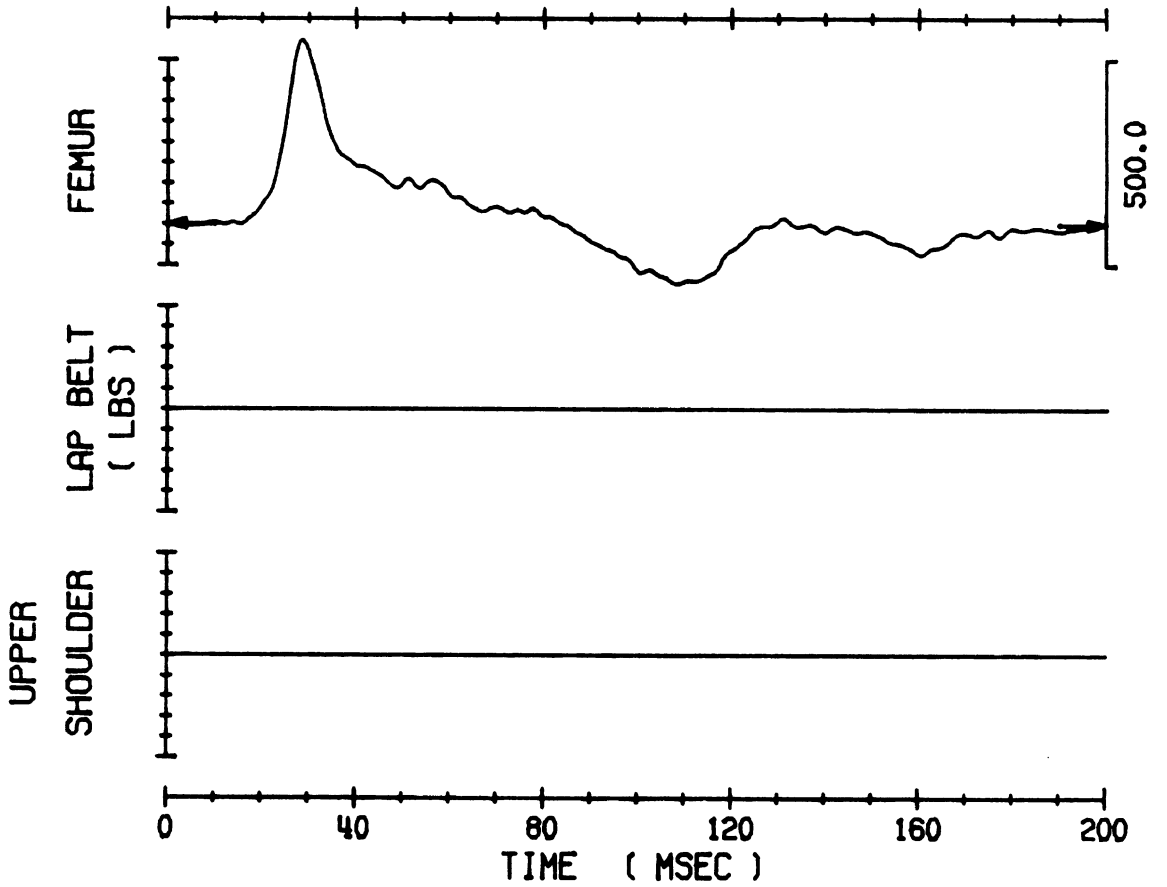


SLED DECLERATION

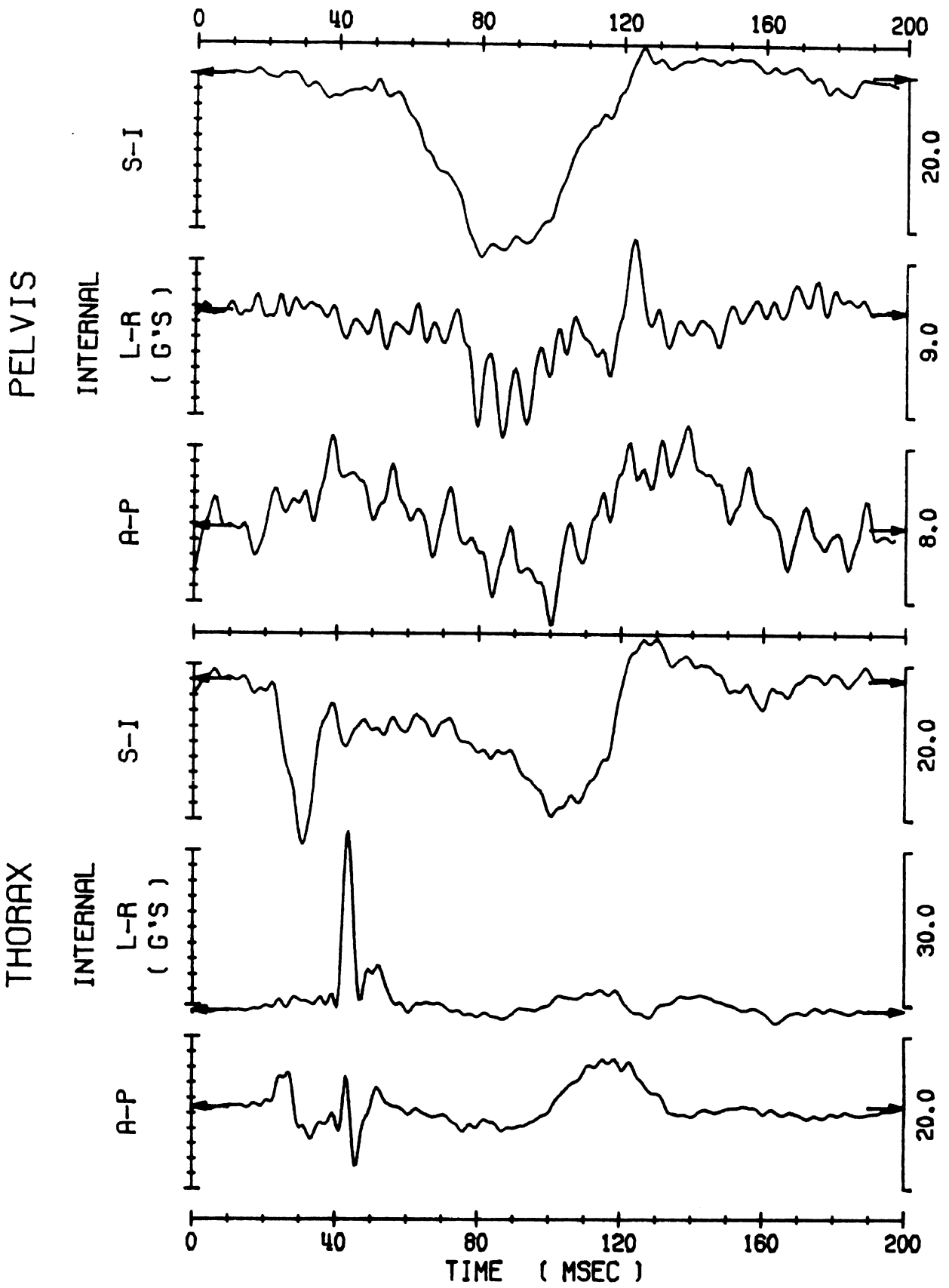
RIGHT SIDE



LEFT SIDE



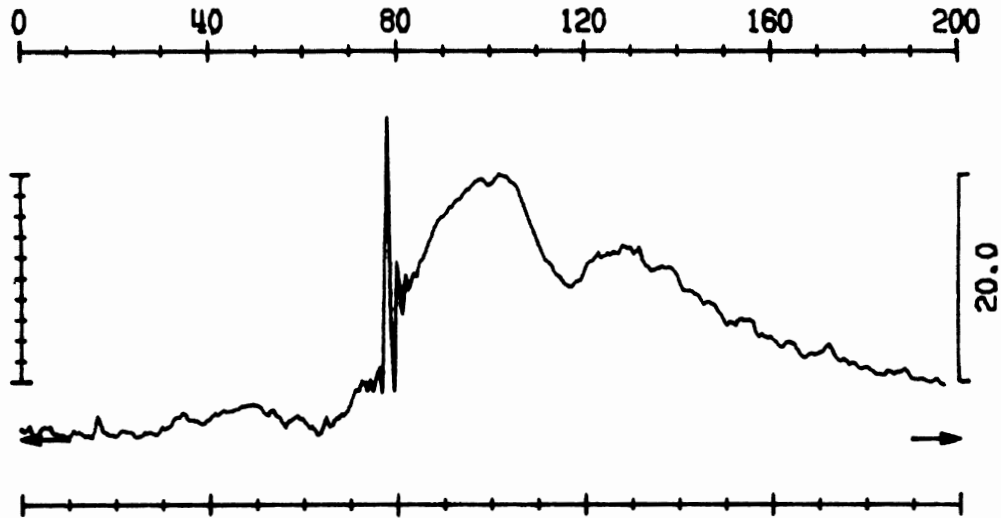
MEASURED FORCES



MEASURED ACCELERATIONS

RESULTANT

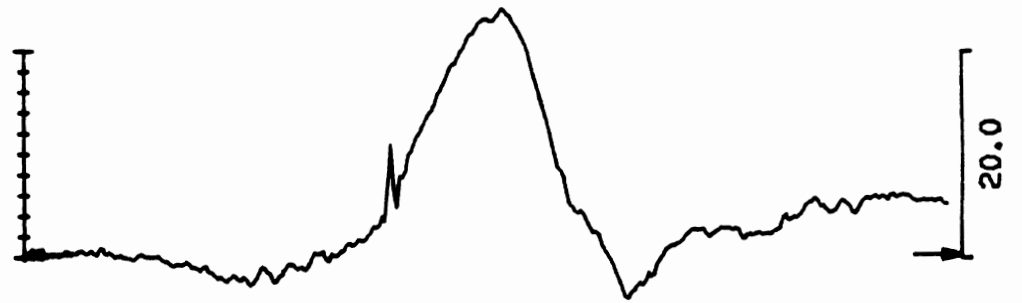
GSI = 126
HIC = 105



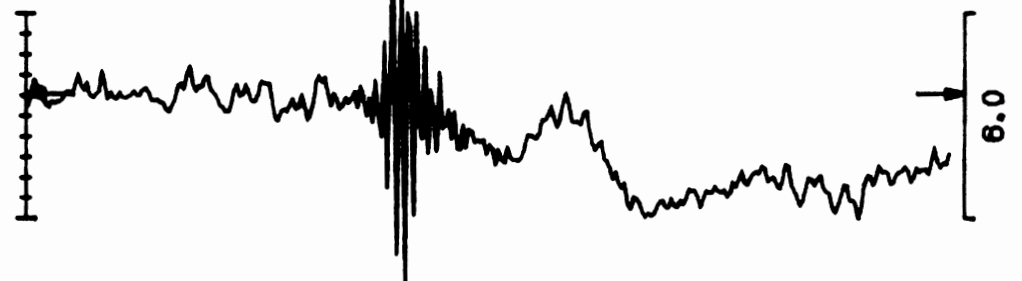
HEAD STD TRIAX

READINGS
L-R
(G'S)

S-I



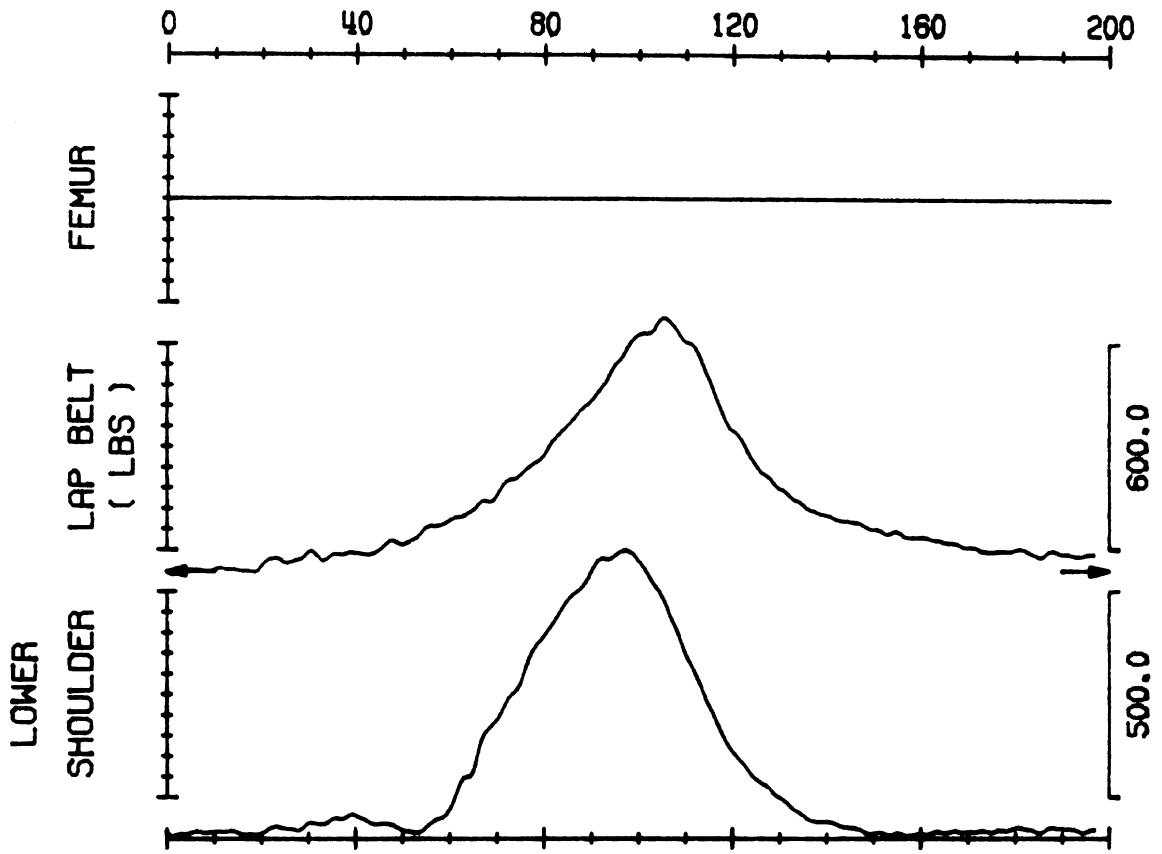
A-P



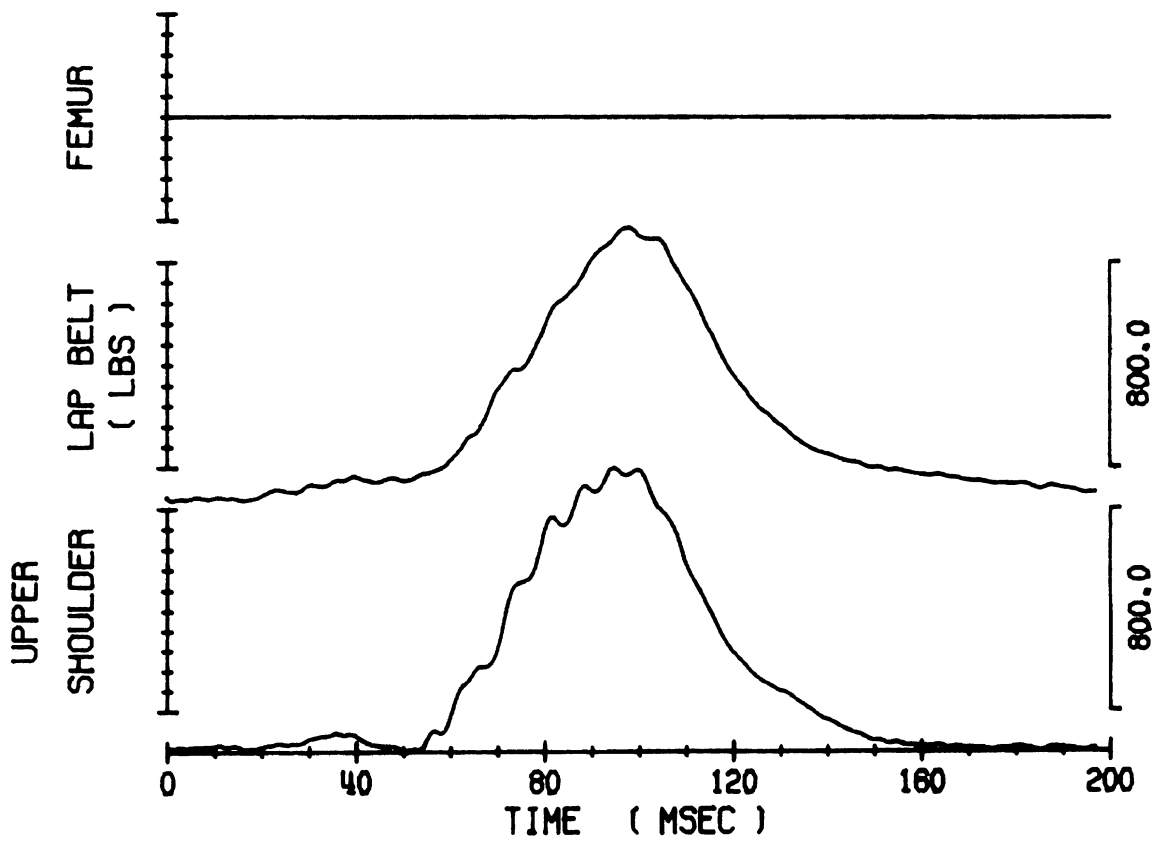
TIME (MSEC)

MEASURED ACCELERATIONS

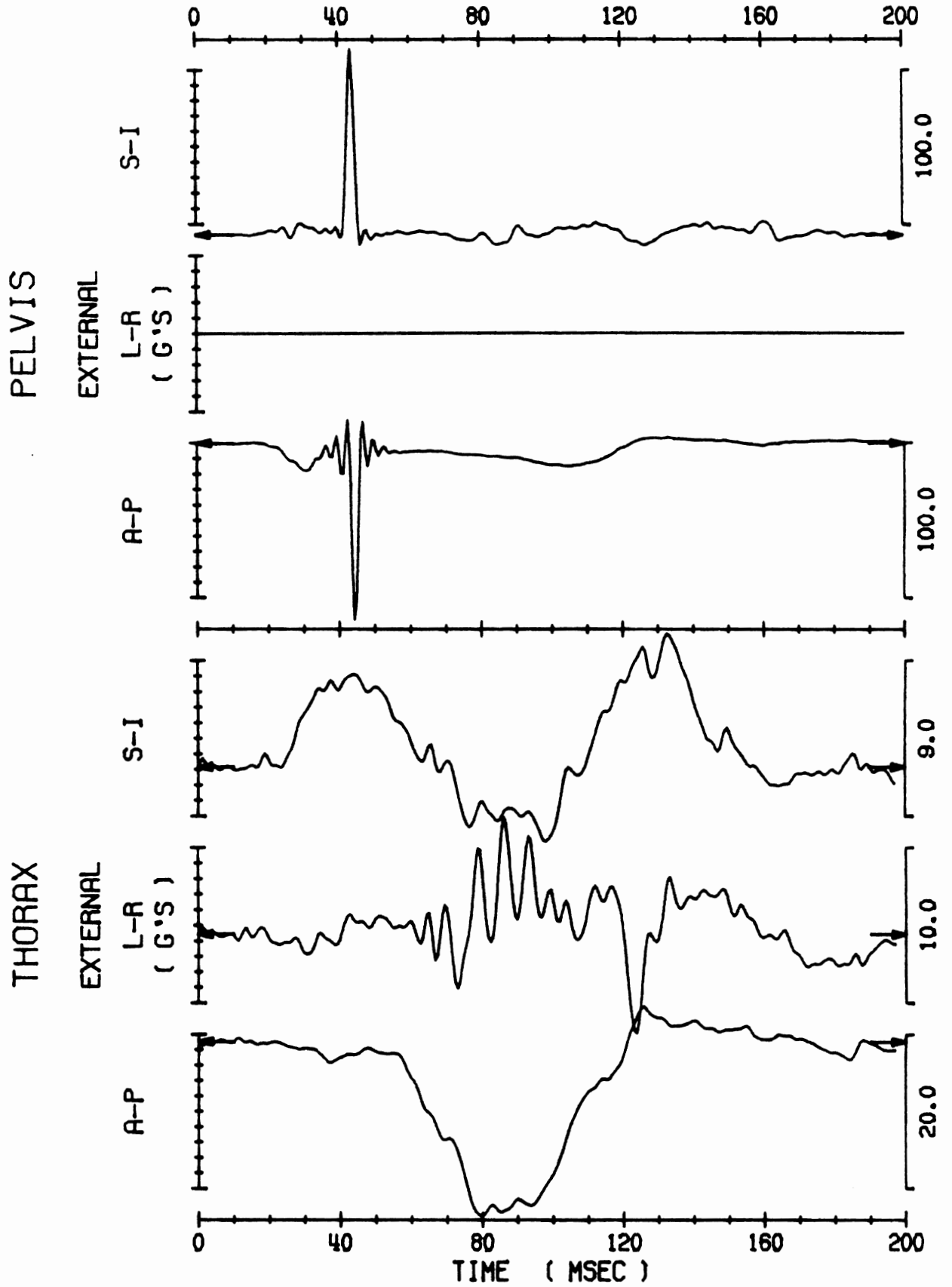
RIGHT SIDE



LEFT SIDE



MEASURED FORCES



MEASURED ACCELERATIONS

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: A-892

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SUBJECT: DR3X-M

9.8 G-LEVEL
112. MS LONG
22.0 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1183. | 695. | 1055. | 833. | 408. | 556. |
| (LBS) @ (MS) | 36.1 | 33.0 | 100.5 | 105.5 | 17.3 | 16.1 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|--|-------------------|-------|-----|-------|-----|-------|-----|
| | | MIN | MAX | MIN | MAX | MIN | MAX |

| | | | | | | | |
|----------------|------|------|-------|------|-------|-------|-------|
| IN THORAX ACC: | 24. | -3. | 7. | -3. | 9. | -21. | 1. |
| (G'S) @ (MS) | 16.1 | 73.4 | 110.2 | 71.2 | 111.9 | 101.0 | 167.3 |
| GSI= | 84 | | | | | | |

| | | | | | | | |
|----------------|------|------|-------|------|-------|-------|-------|
| IN PELVIS ACC: | 26. | -5. | 15. | -23. | 2. | -6. | 2. |
| (G'S) @ | 71.6 | 88.7 | 116.5 | 72.0 | 154.9 | 114.0 | 119.2 |

| | | | | | | | |
|----------------|------|------|-------|-------|-------|------|-------|
| EX THORAX ACC: | 26. | -23. | 1. | -4. | 5. | -5. | 17. |
| (G'S) @ | 71.7 | 71.6 | 156.3 | 105.3 | 115.2 | 87.6 | 118.5 |
| GSI= | 114 | | | | | | |

| | | | | | | | |
|----------------|-----|-------|-------|-----|-----|------|-------|
| EX PELVIS ACC: | 0. | -19. | 1. | 0. | 0. | -9. | 11. |
| (G'S) @ | 0.0 | 101.9 | 134.4 | 0.0 | 0.0 | 72.0 | 108.7 |

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| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| | | | | | | | |
|----------------|--|--|-----|--|-----|--|-----|
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |

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| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

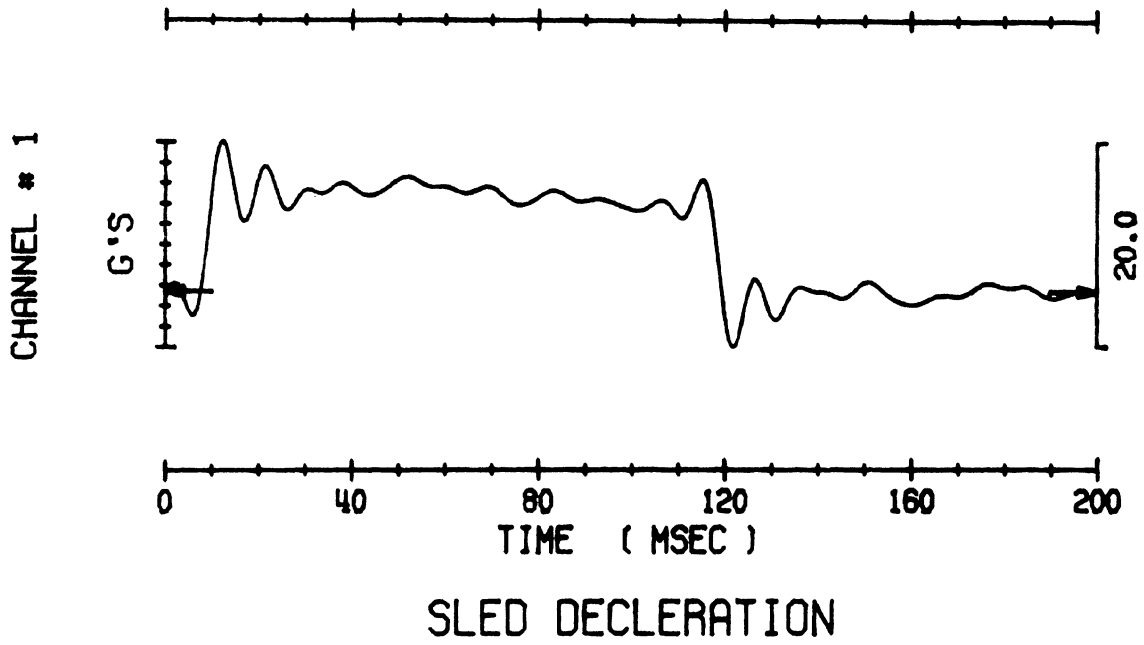
HEAD C.G. HIC= 0

| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

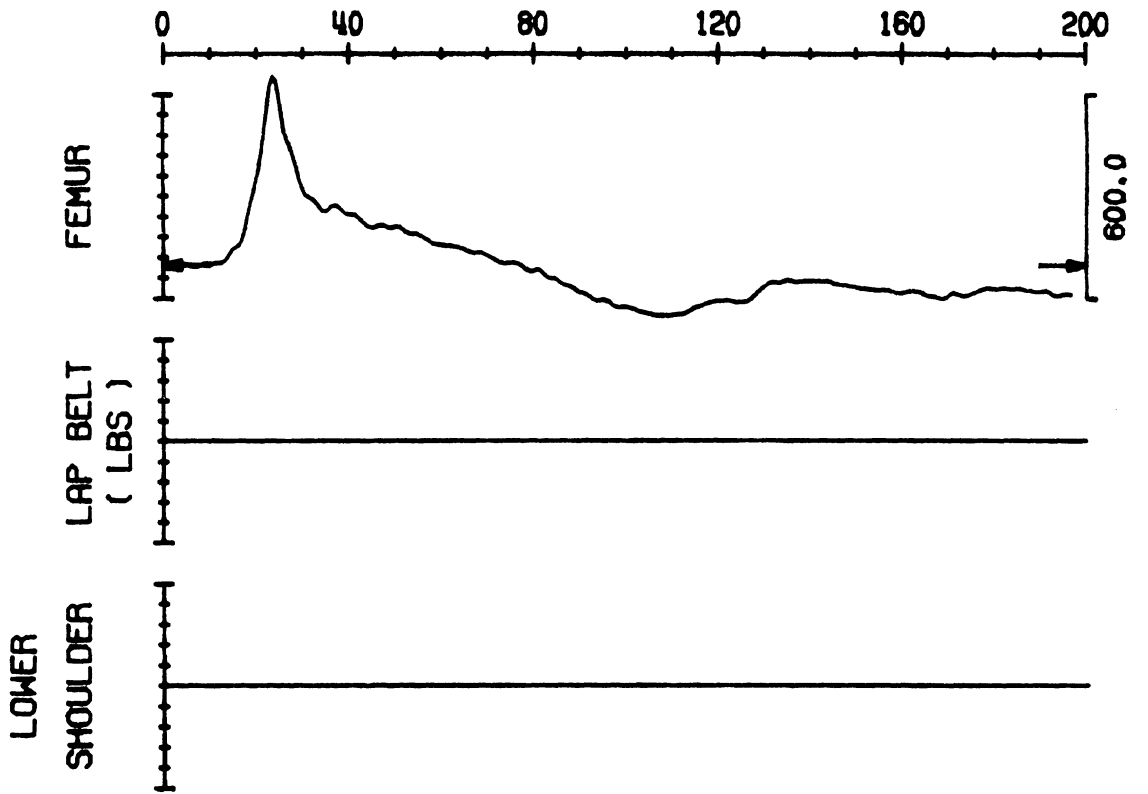
| | | | | | | | |
|----------------|--|--|-----|--|-----|--|-----|
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

FILE: 297

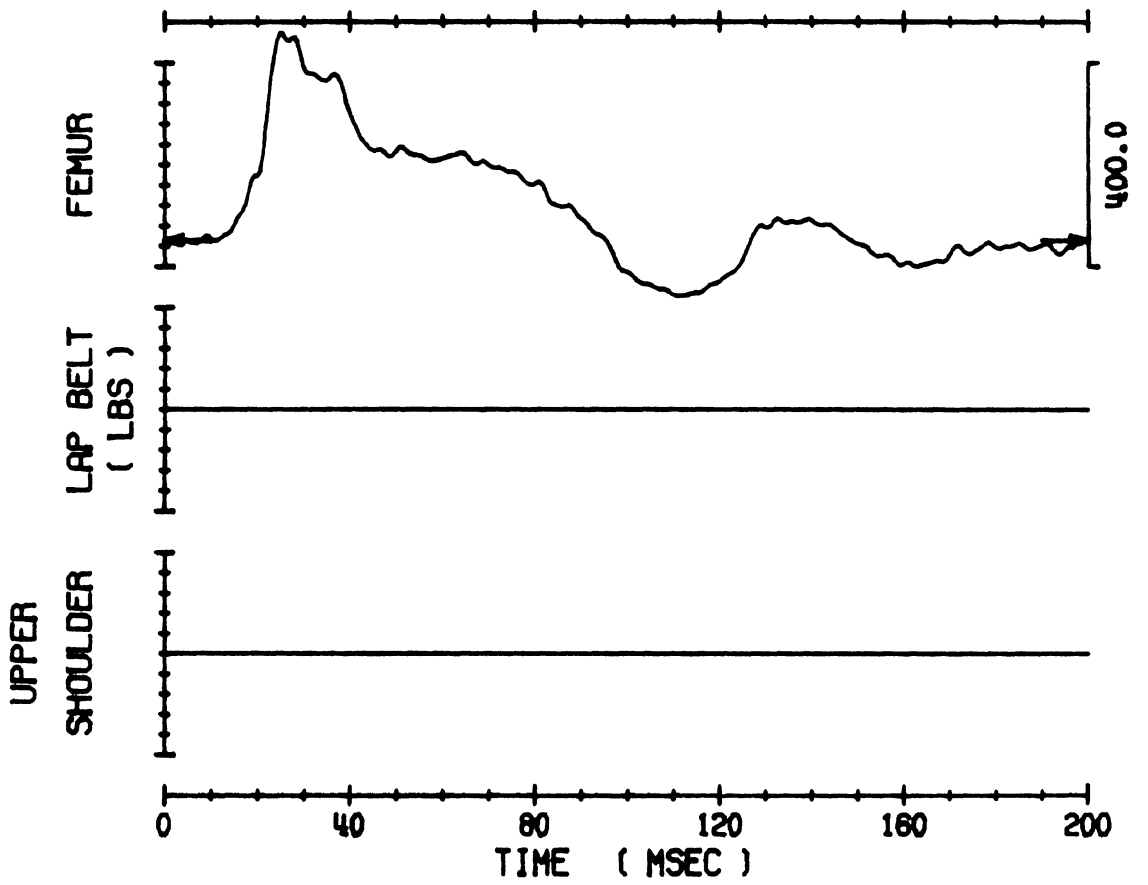
A-892-1: DM3X-M



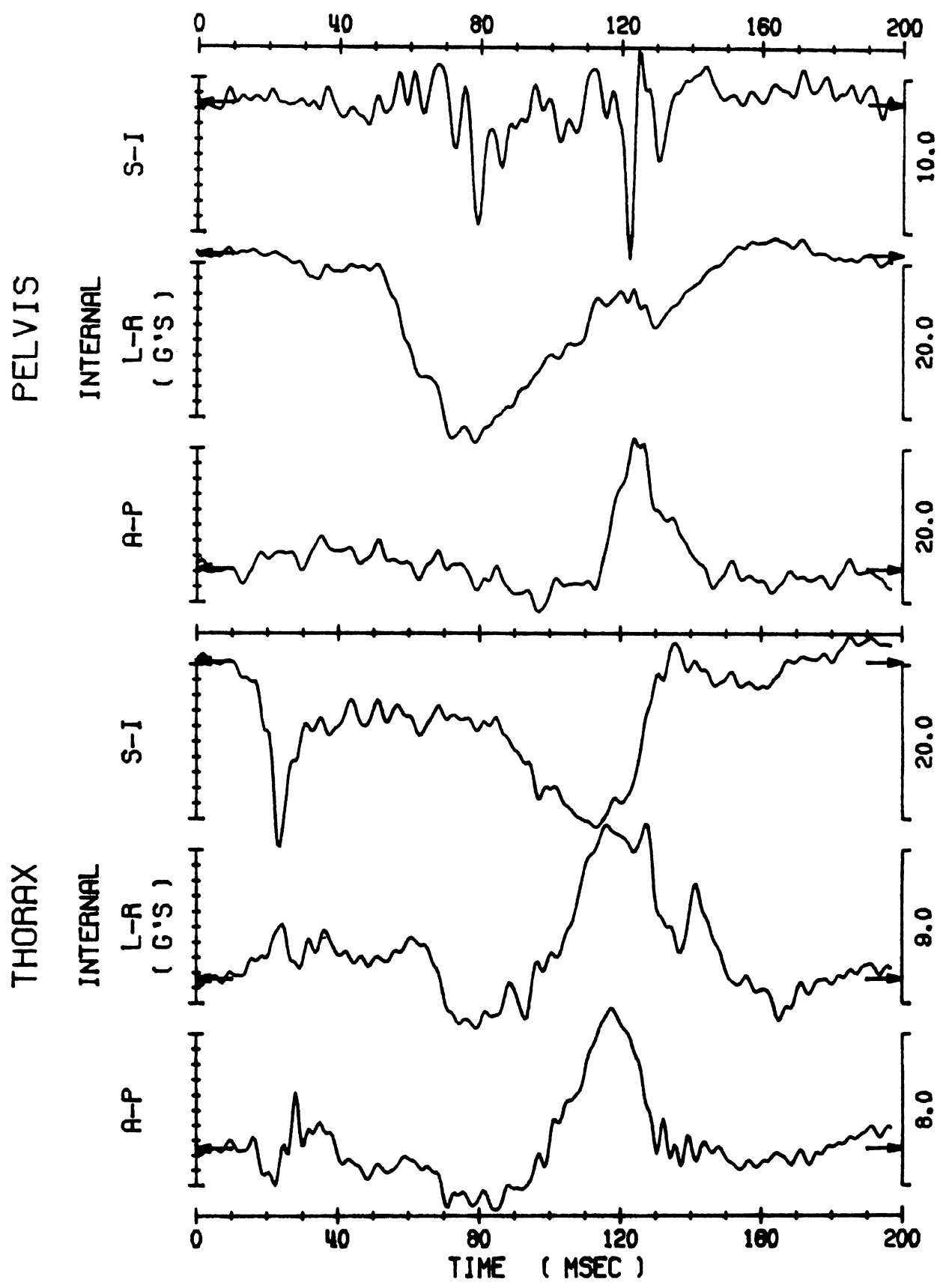
RIGHT SIDE



LEFT SIDE



MEASURED FORCES



MEASURED ACCELERATIONS

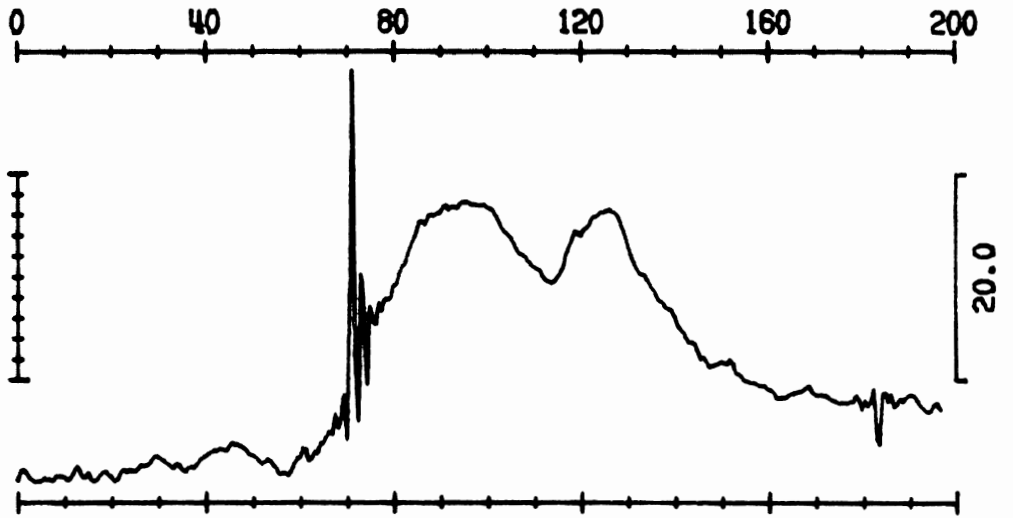
FILE: 240

A-892-1: DM3X-M

RESULTANT

GSI = 200

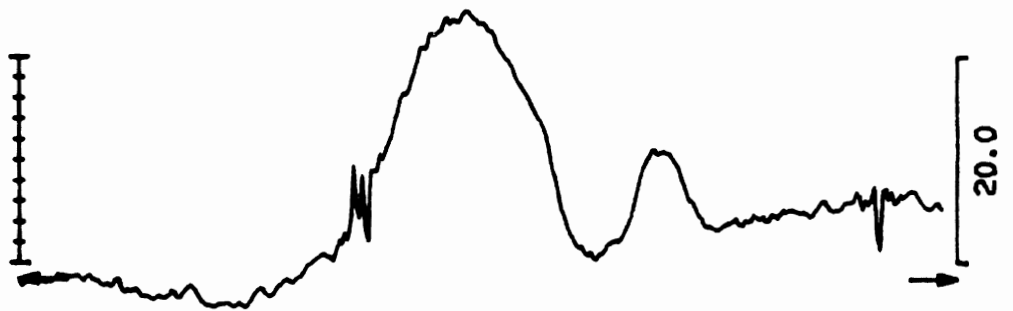
HIC = 171



HEAD STD TRIAX

READINGS

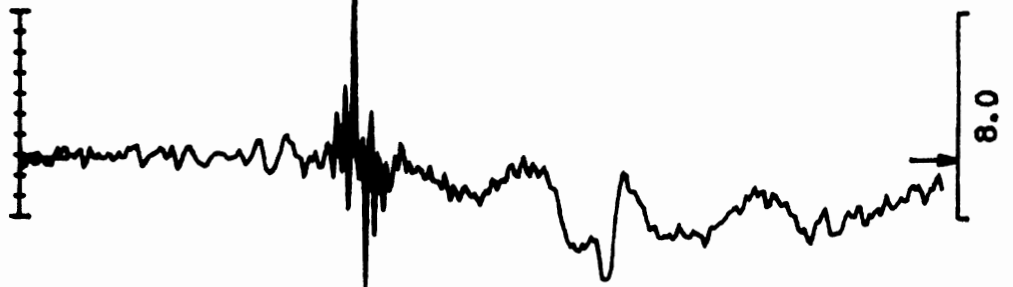
L-R
(G'S)



S-I



A-P



TIME (MSEC)

MEASURED ACCELERATIONS

LEFT SIDE

RIGHT SIDE

UPPER
SHOULDER

LAP BELT
(LBS)

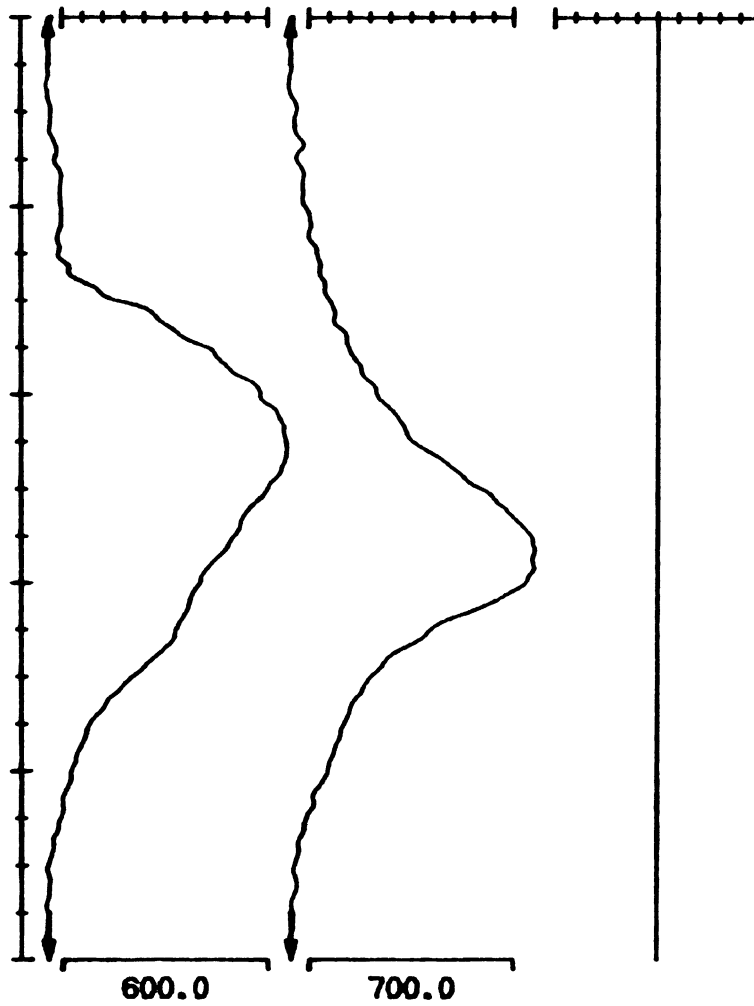
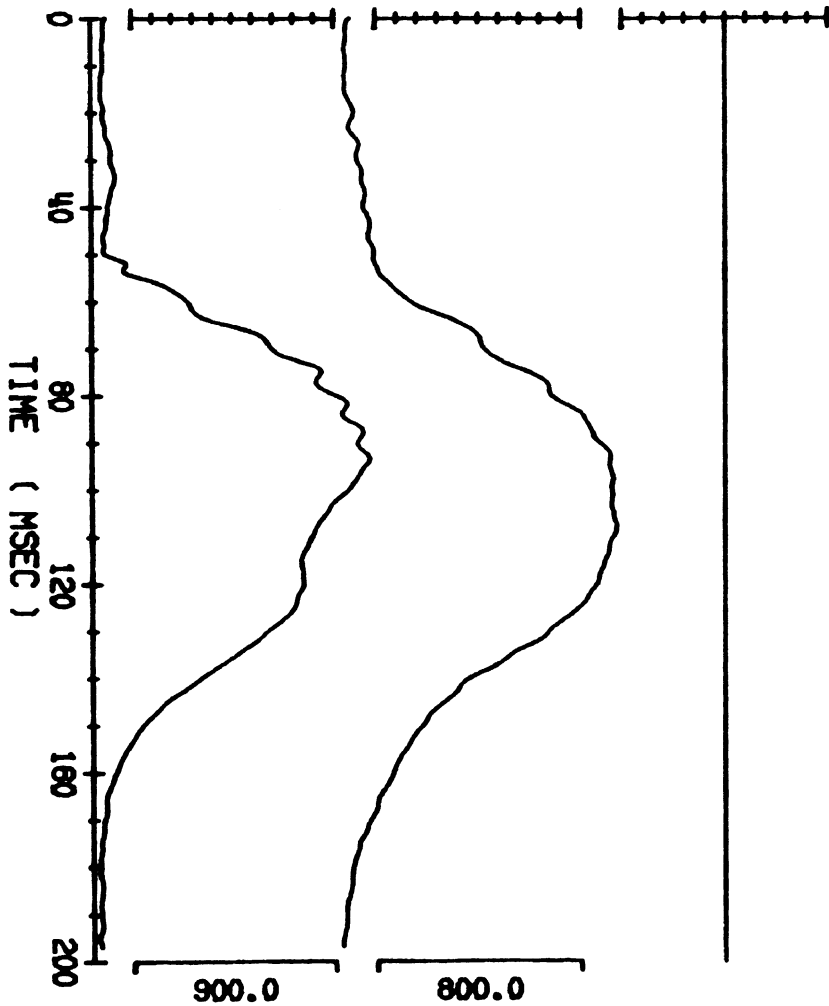
FEMUR

LOWER
SHOULDER

LAP BELT
(LBS)

FEMUR

MEASURED FORCES

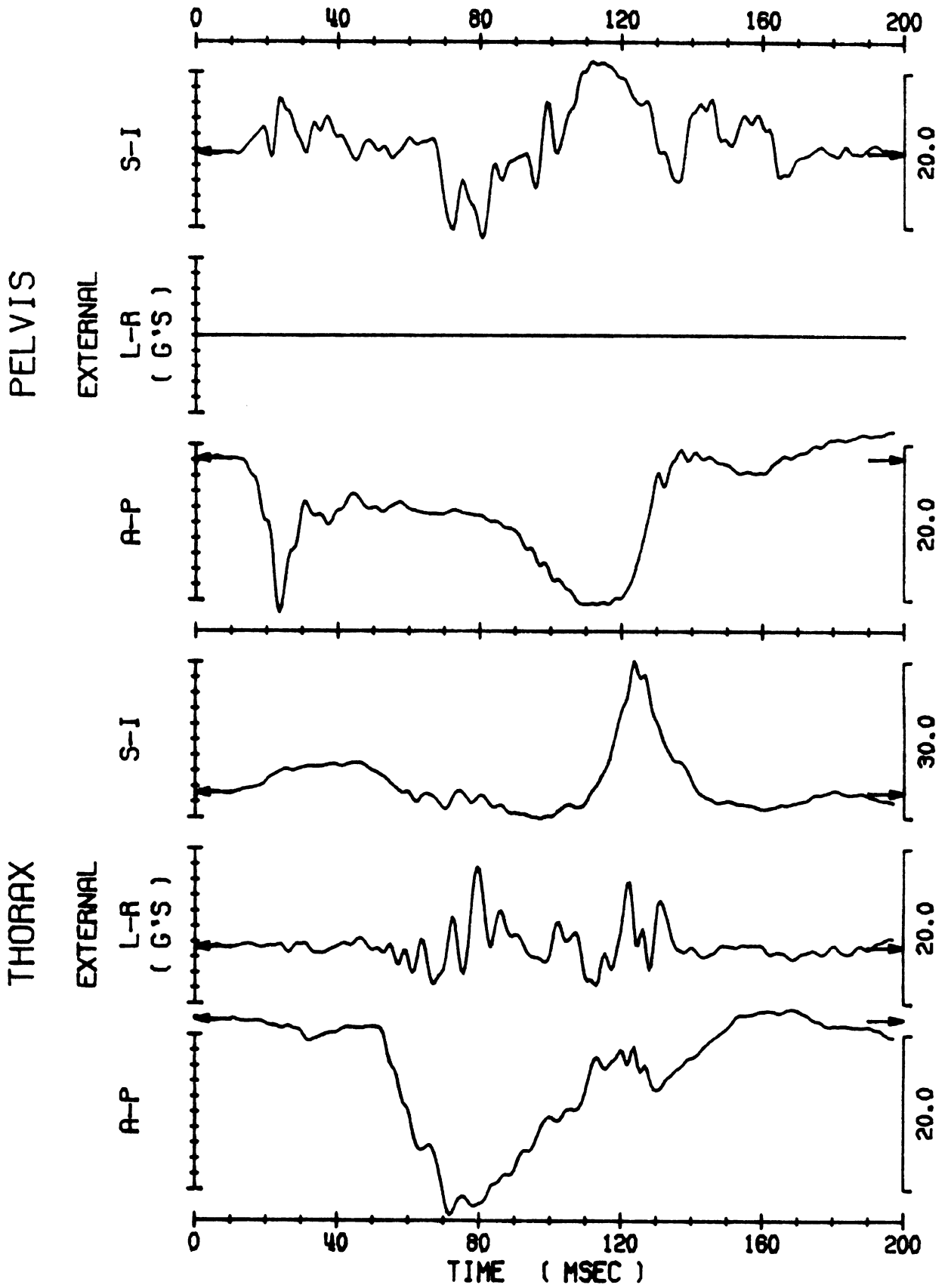


FILE: 241

A-892-2: DM3X-M

FILE: 242

A-892-2: DM3X-M



MEASURED ACCELERATIONS

WHOLE BODY RESPONSE
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SUMMARY
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TEST NO.: A-893
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SUBJECT: DM3X-M

9.7 G-LEVEL
111. MS LONG
21.4 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1168. | 701. | 1110. | 926. | 448. | 485. |
| (LBS) @ (MS) | 85.3 | 82.1 | 105.3 | 105.3 | 16.5 | 17.1 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 24. | -2. | 6. | -2. | 10. | -21. | 3. |
| (G'S) @ (MS) | 107.7 | 70.8 | 107.4 | 71.8 | 110.1 | 100.6 | 175.6 |
| GSI= | 84 | | | | | | |
| IN PELVIS ACC: | 24. | -3. | 15. | -24. | 2. | -3. | 1. |
| (G'S) @ | 70.9 | 92.5 | 116.3 | 70.1 | 158.6 | 67.6 | 84.8 |
| EX THORAX ACC: | 29. | -23. | 1. | -2. | 3. | -4. | 21. |
| (G'S) @ | 117.2 | 71.2 | 158.3 | 106.5 | 115.9 | 84.8 | 115.9 |
| GSI= | 108 | | | | | | |
| EX PELVIS ACC: | 0. | -20. | 1. | 0. | 0. | -7. | 14. |
| (G'S) @ | 0.0 | 104.5 | 167.1 | 0.0 | 0.0 | 68.1 | 106.6 |

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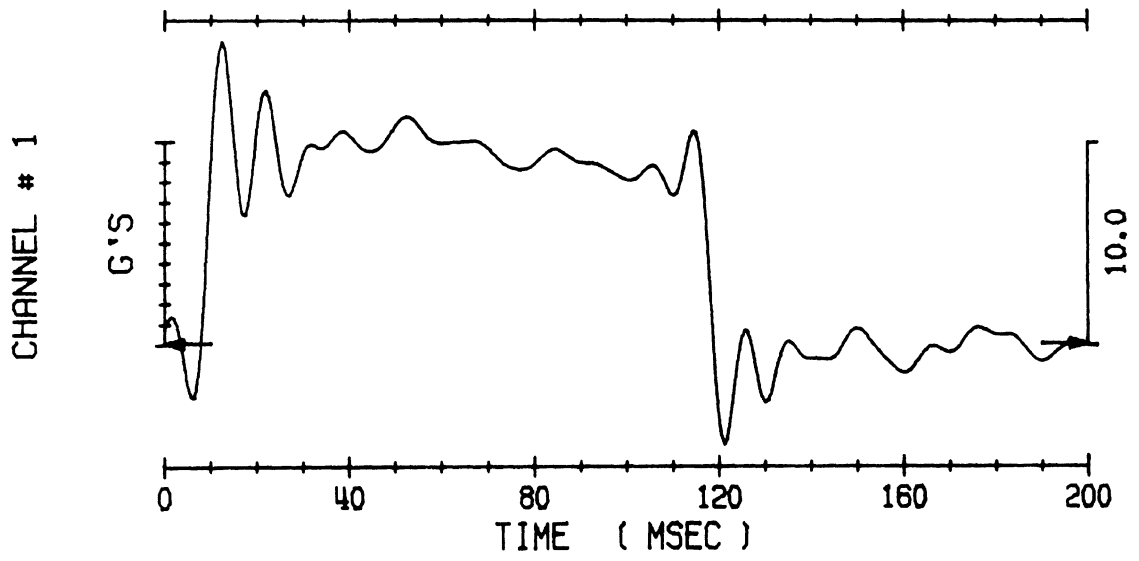
| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |

.....

| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

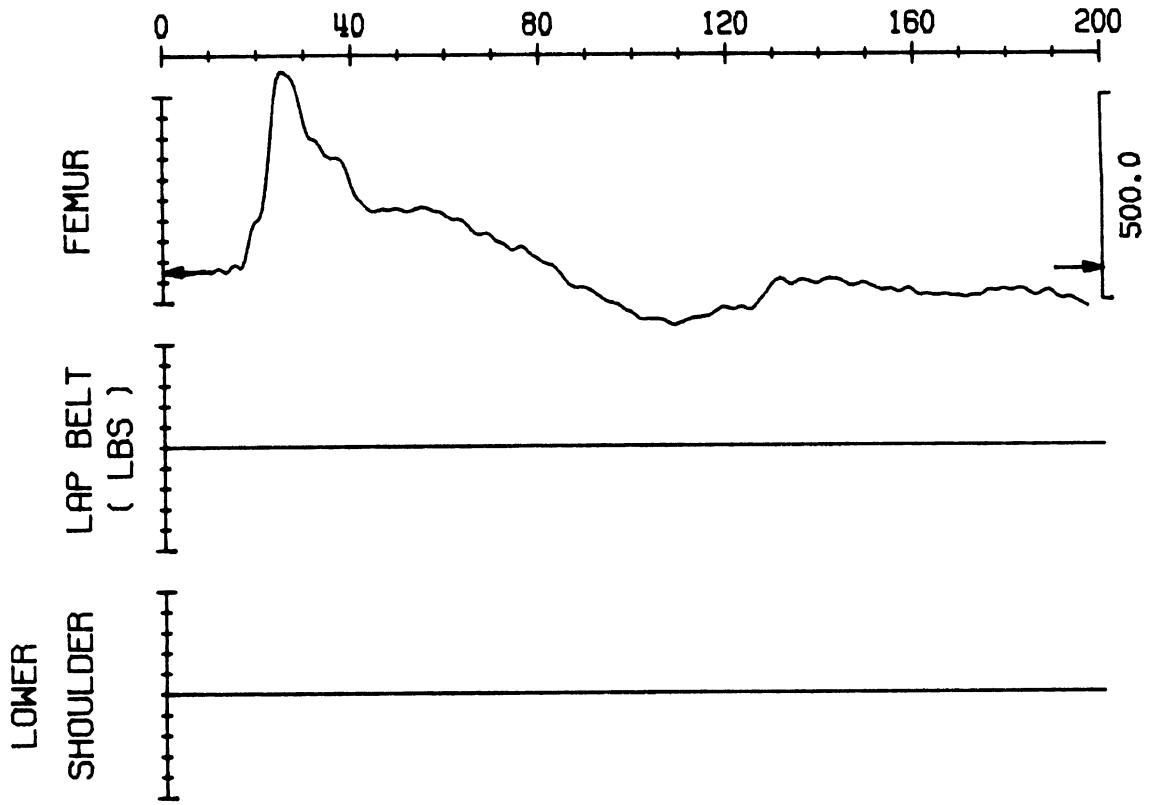
FILE: 243

A-893-1: DM3X-M

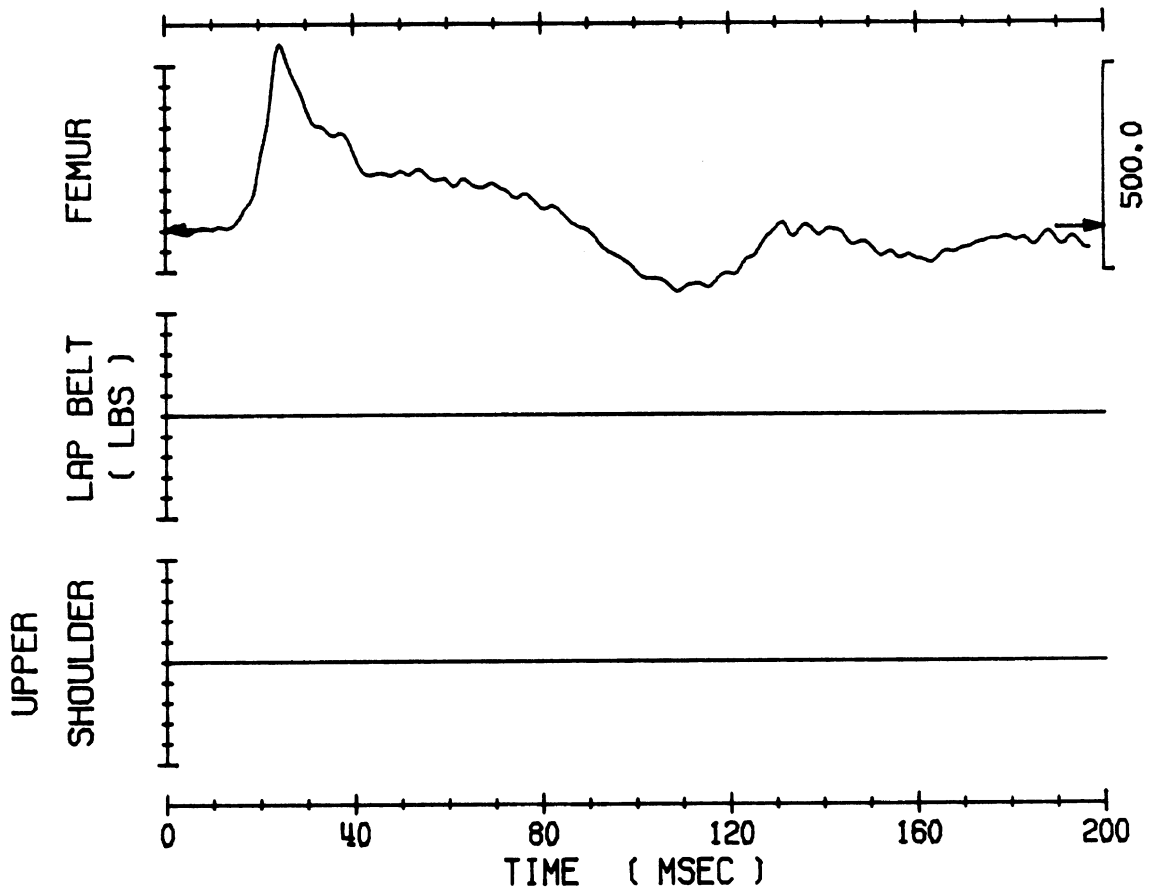


SLED DECLERATION

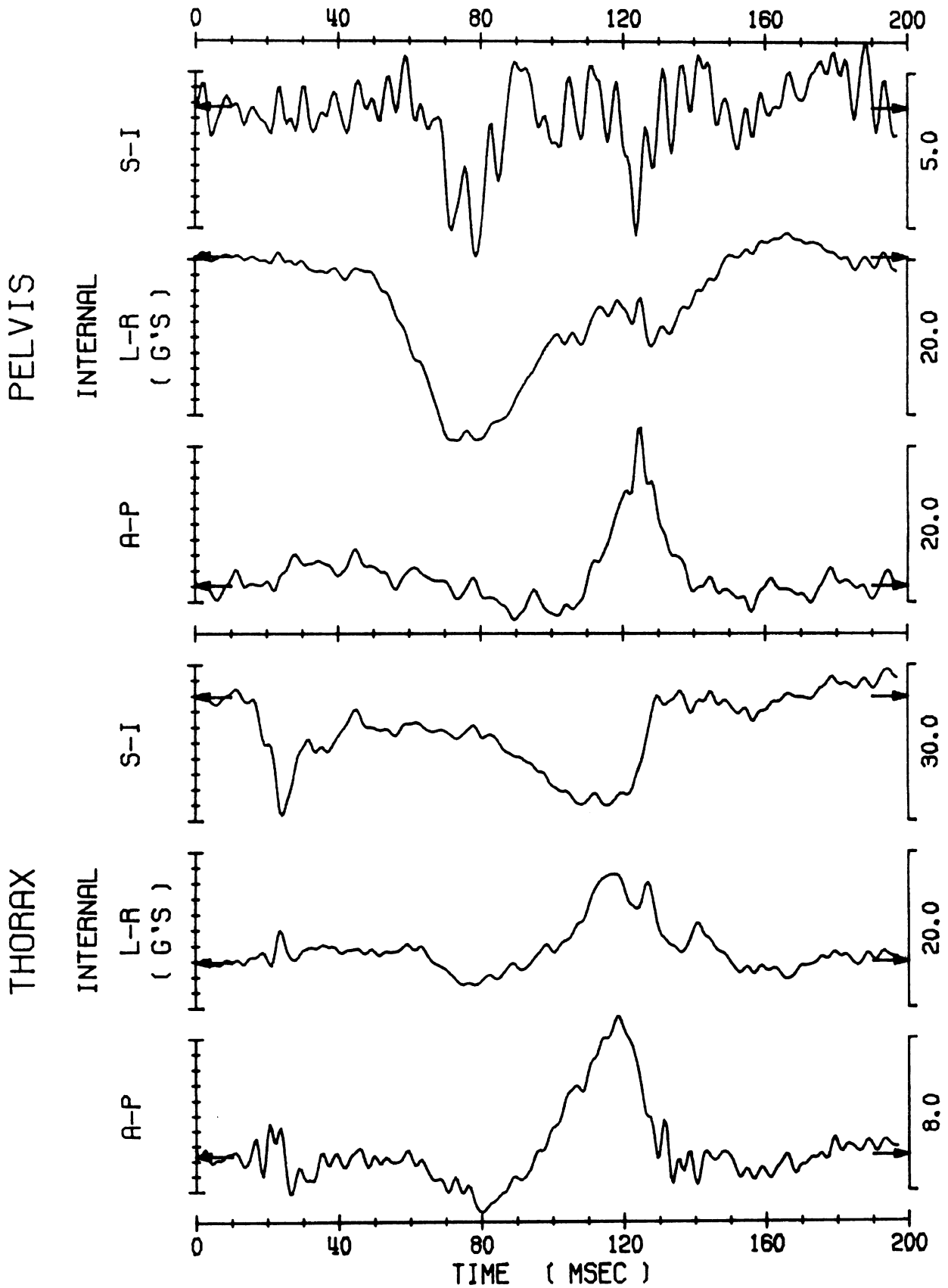
RIGHT SIDE



LEFT SIDE



MEASURED FORCES

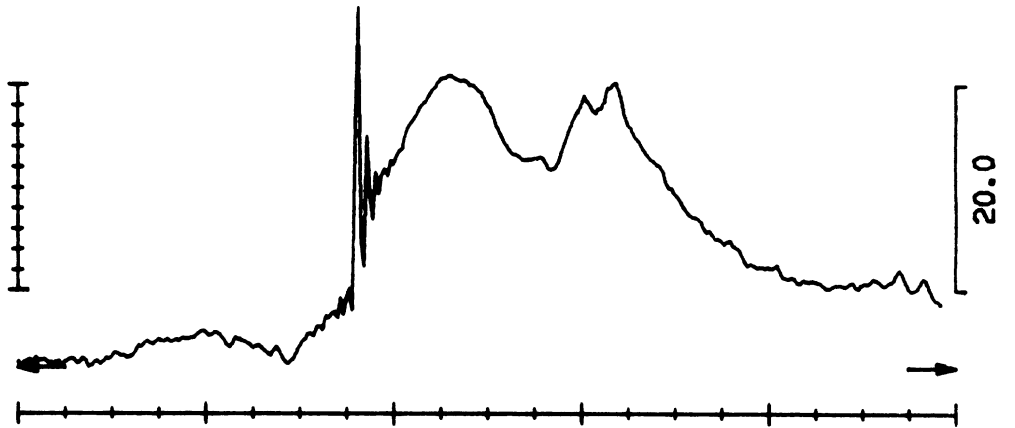
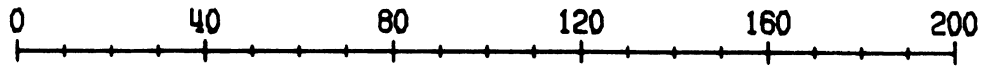


MEASURED ACCELERATIONS

RESULTANT

GSI = 202

HIC = 171



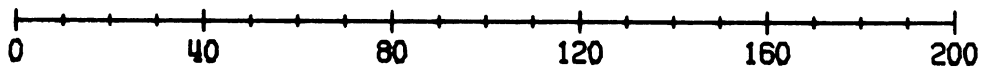
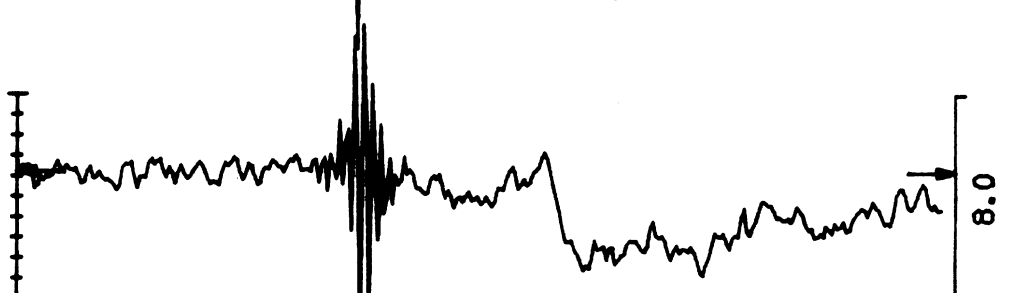
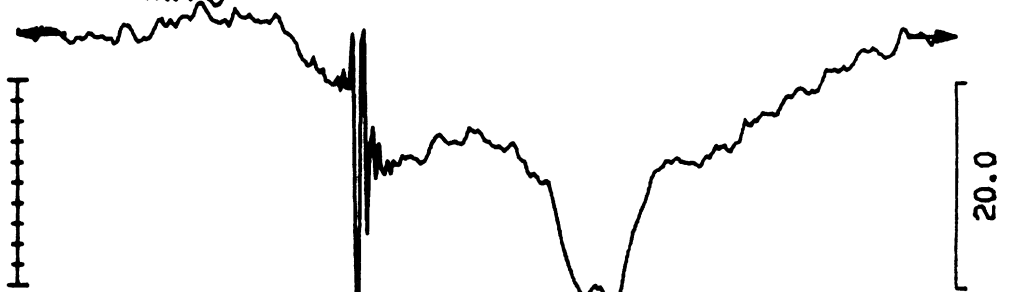
HEAD STD TRIAX

READINGS

L-R
(G'S)

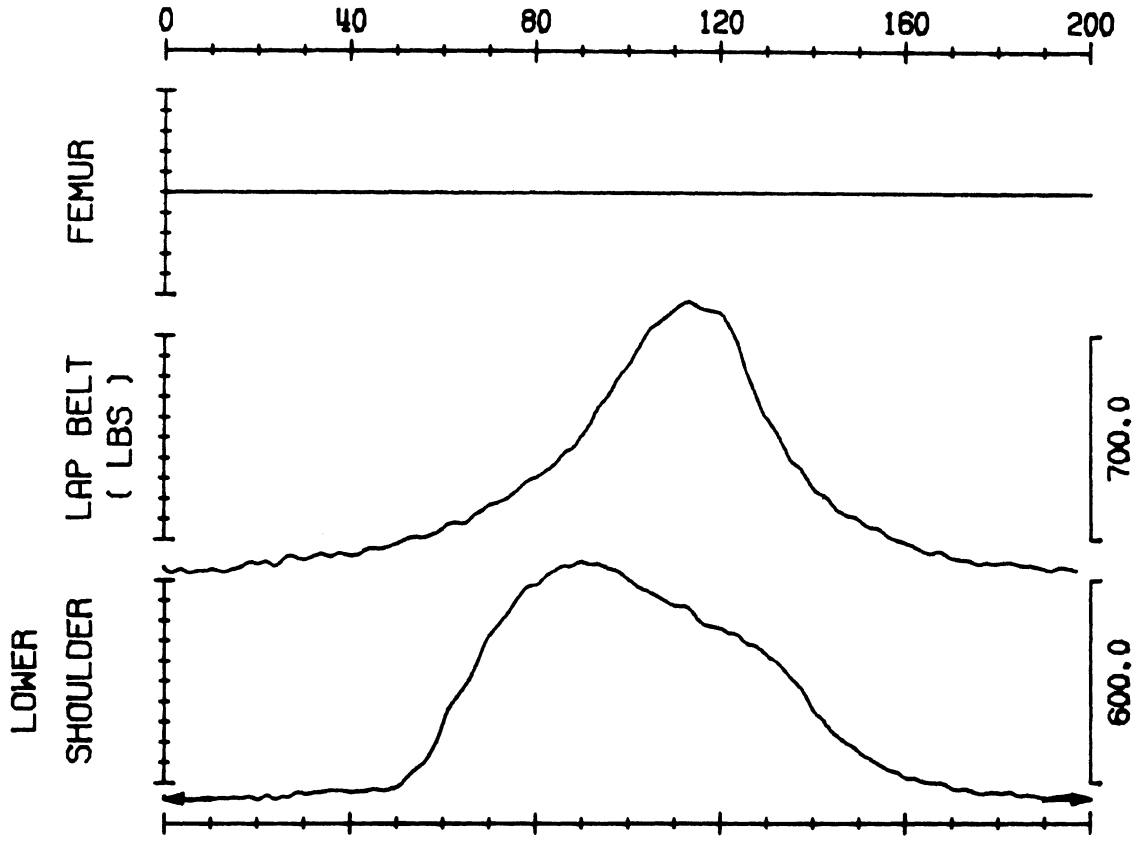
S-I

A-P

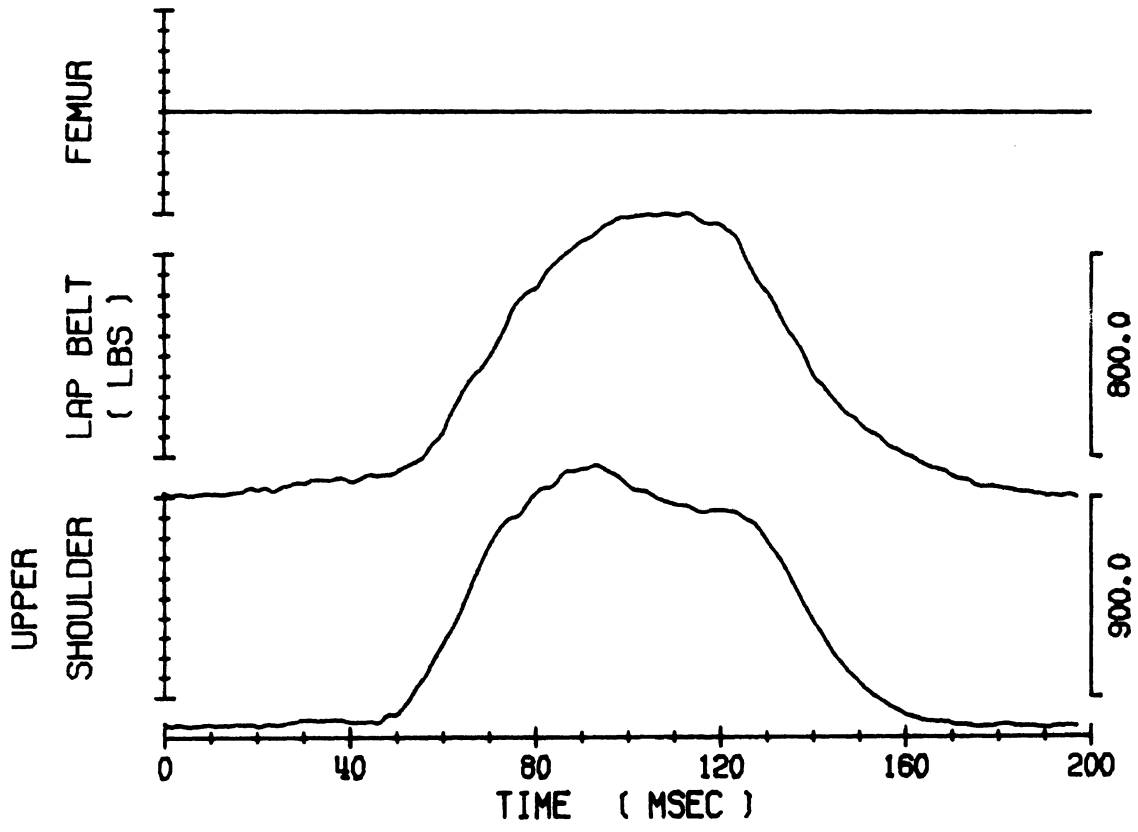


MEASURED ACCELERATIONS

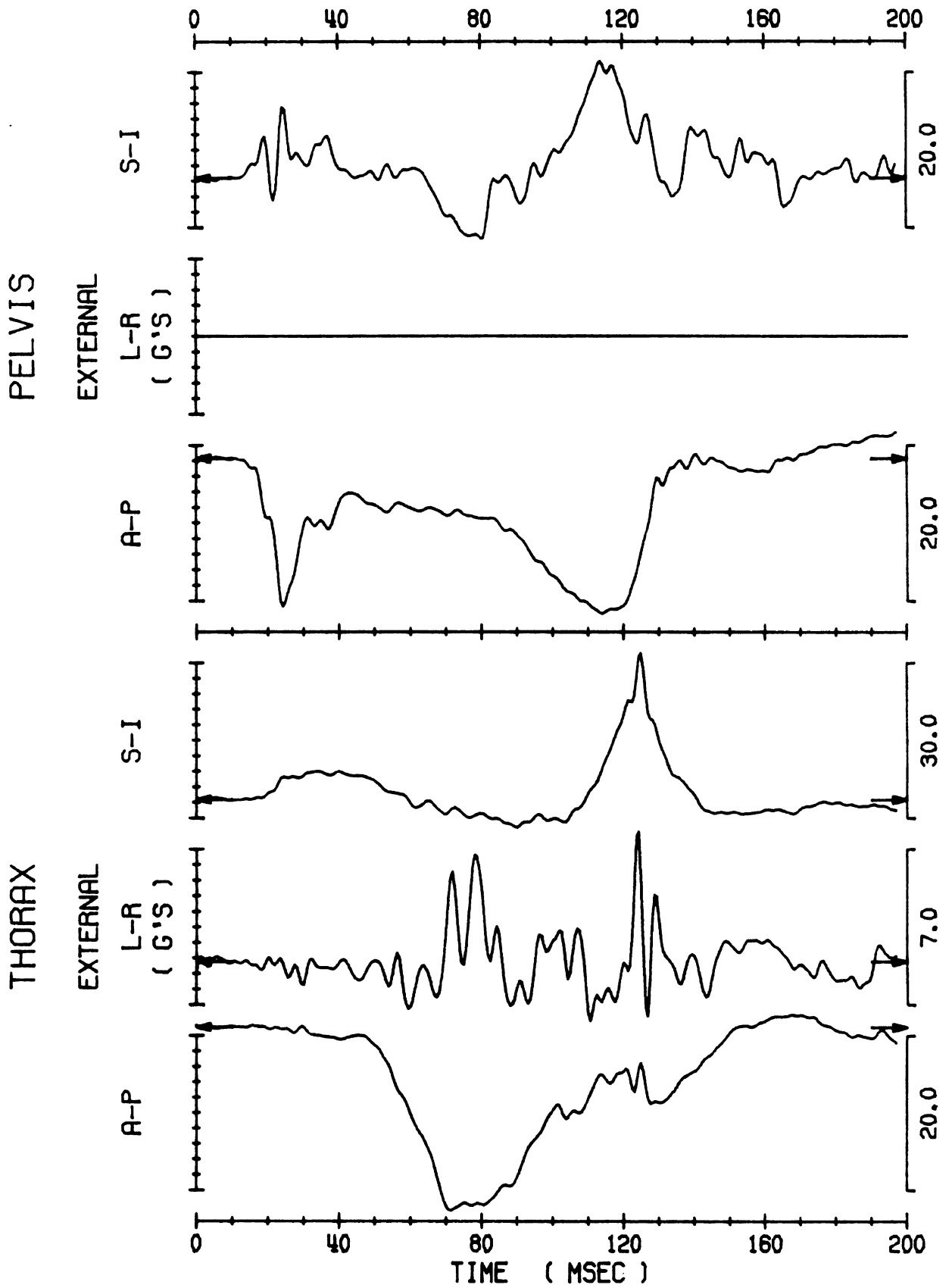
RIGHT SIDE



LEFT SIDE



MEASURED FORCES



MEASURED ACCELERATIONS

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: A-894

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SUBJECT: DM3X-M

3.6 G-LEVEL
111. MS LONG
20.8 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1161. | 777. | 1217. | 1043. | 466. | 576. |
| (LBS) @ (MS) | 88.4 | 85.3 | 106.5 | 105.9 | 19.6 | 17.1 |

| | RESULTANT PEAK | (A-D) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 27. | -2. | 5. | -2. | 11. | -23. | 1. |
| (G'S) @ (MS) | 17.1 | 68.4 | 105.6 | 74.3 | 109.0 | 103.4 | 164.0 |
| GSI= | 93 | | | | | | |
| IN PELVIS ACC: | 25. | -5. | 12. | -24. | 2. | -7. | 6. |
| (G'S) @ | 75.3 | 85.3 | 117.5 | 74.8 | 157.9 | 121.0 | 115.4 |
| EX THORAX ACC: | 26. | -24. | 1. | -10. | 8. | -6. | 17. |
| (G'S) @ | 74.6 | 75.4 | 163.2 | 115.1 | 121.4 | 83.8 | 116.3 |
| GSI= | 112 | | | | | | |
| EX PELVIS ACC: | 0. | -22. | 2. | 0. | 0. | -6. | 14. |
| (G'S) @ | 0.0 | 103.9 | 170.5 | 0.0 | 0.0 | 71.3 | 106.1 |

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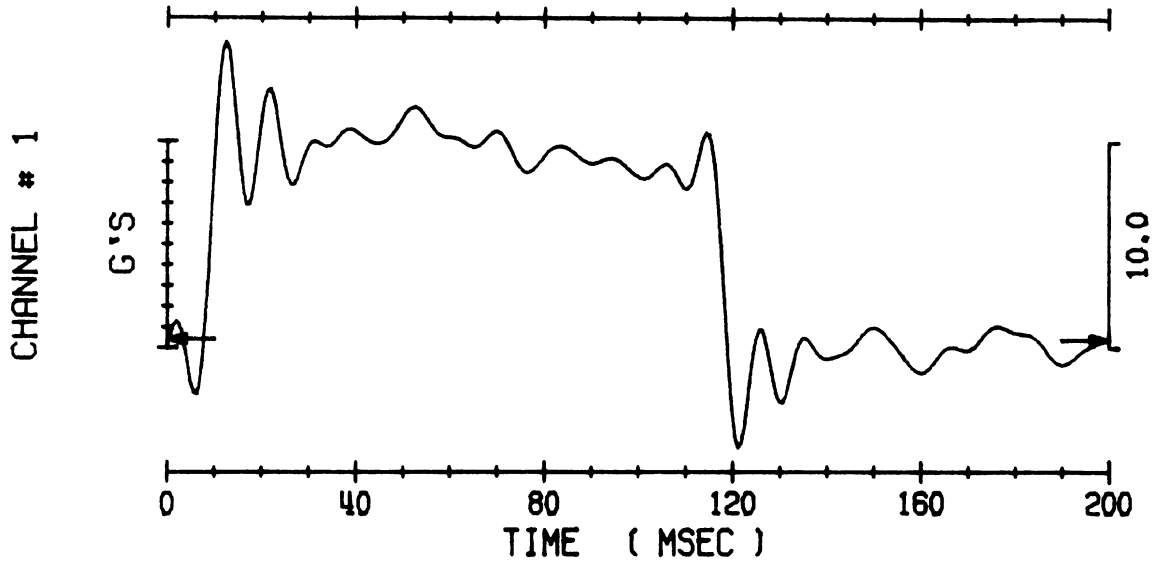
| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |

.....

| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VFL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

FILE: 249

A-894-1: DM3X-M



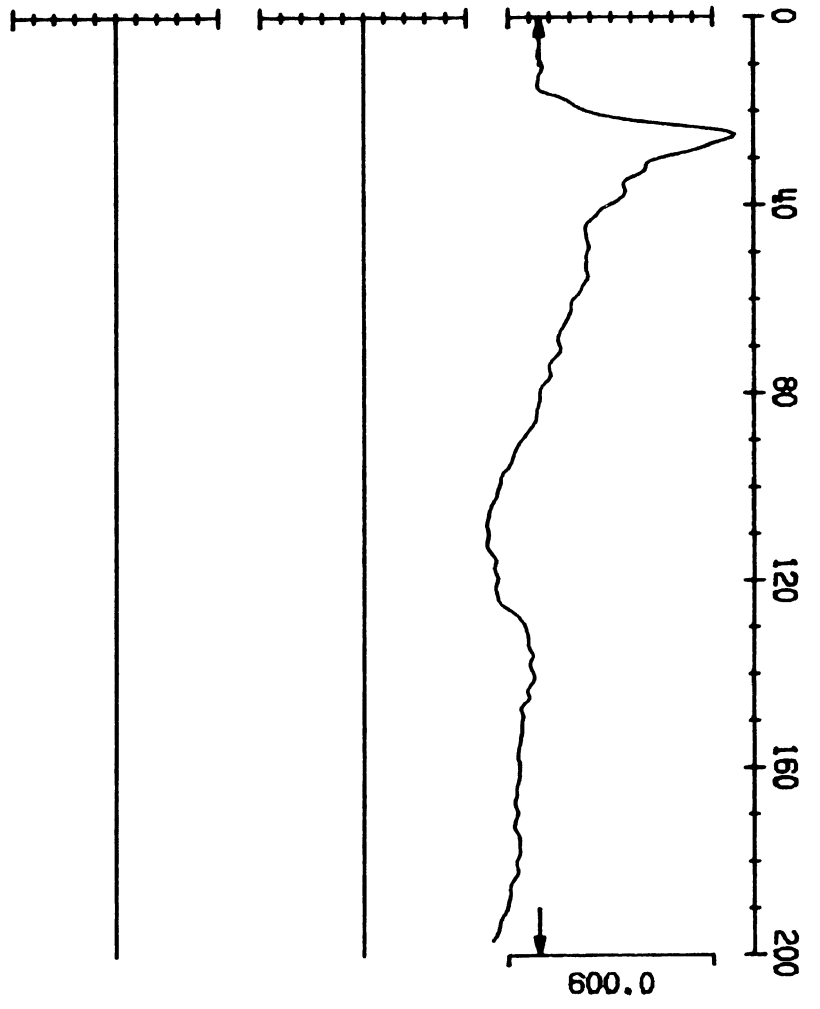
SLED DECLERATION

FILE: 250

R-894-1: DM3X-M

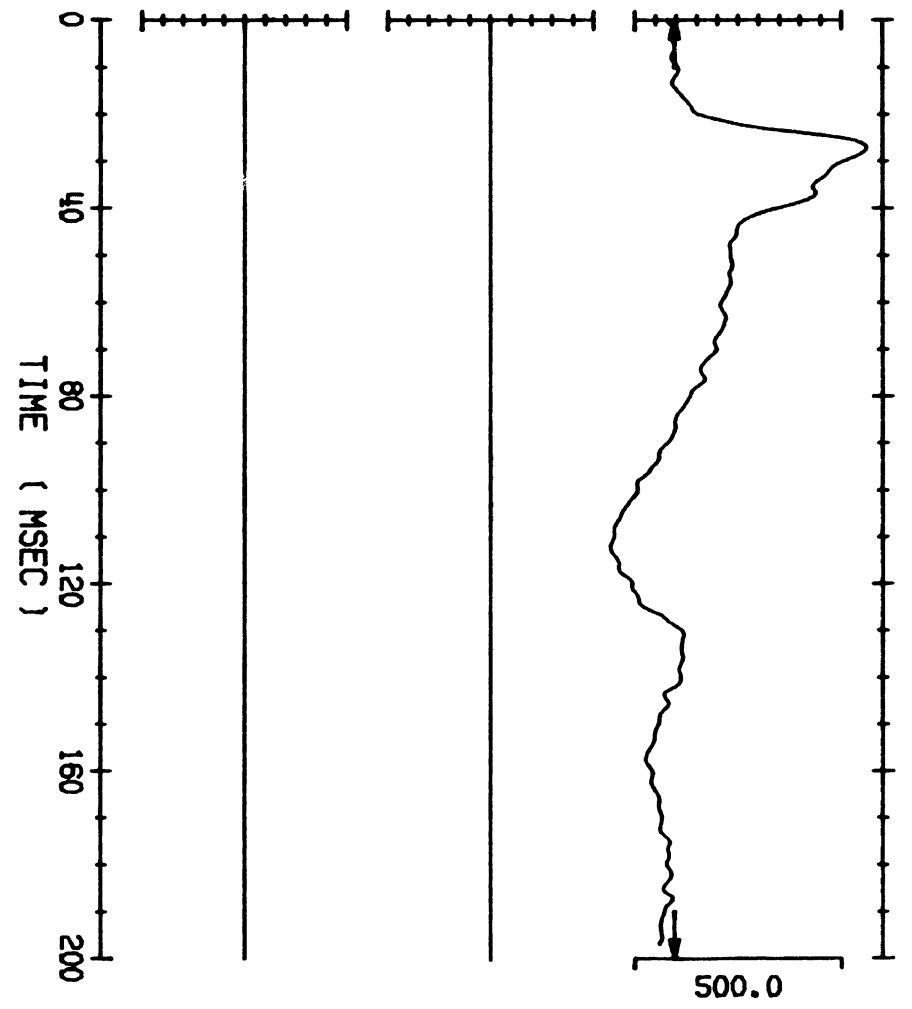
RIGHT SIDE

LOWER SHOULDER LAP BELT (LBS) FEMUR



LEFT SIDE

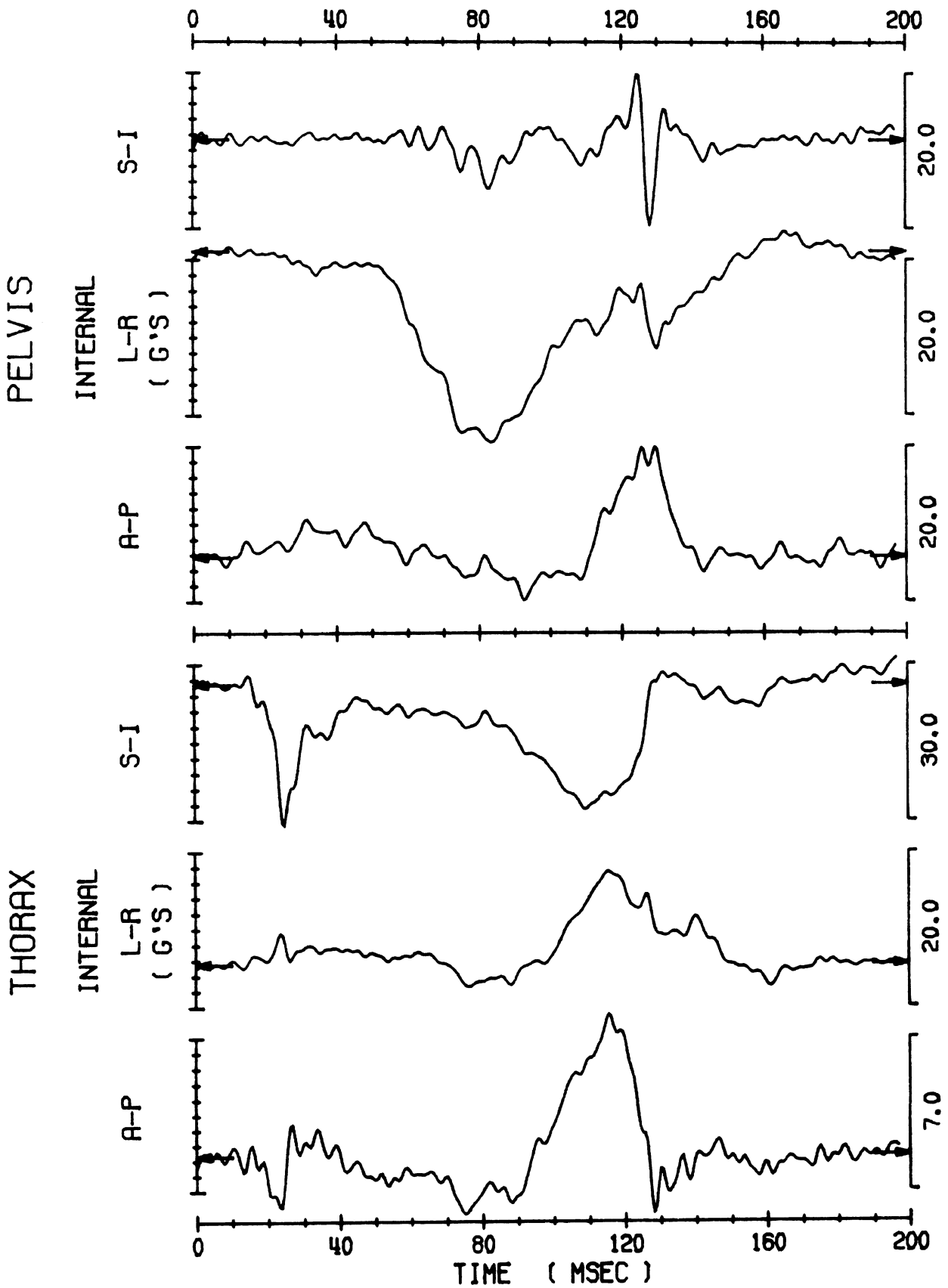
UPPER SHOULDER LAP BELT (LBS) FEMUR



MEASURED FORCES

FILE: 251

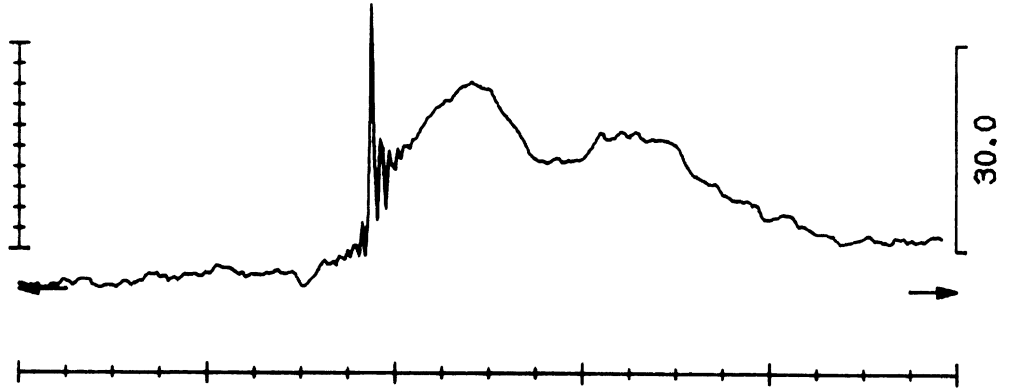
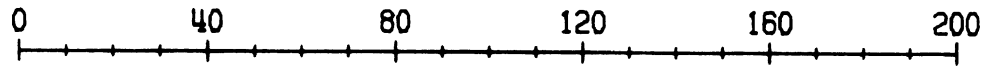
A-894-1: DM3X-M



MEASURED ACCELERATIONS

RESULTANT

GSI = 202
HIC = 172



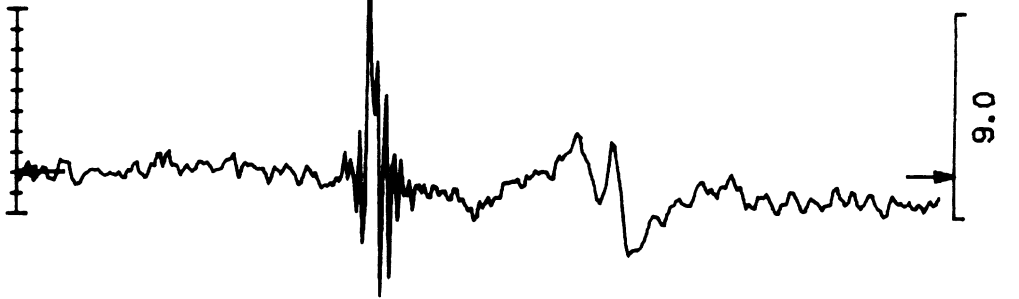
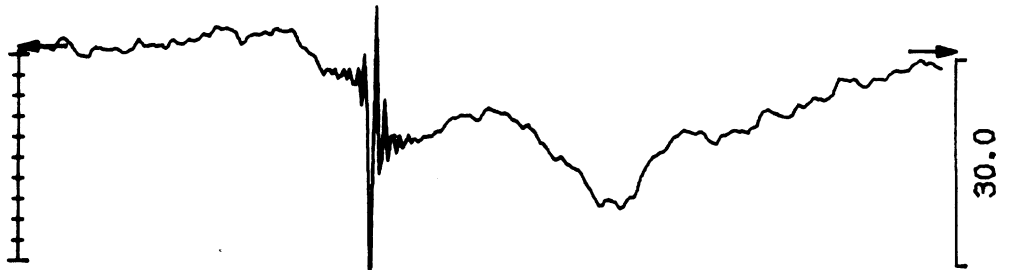
HEAD STD TRIAX

READINGS
L-R
(G'S)

S-I



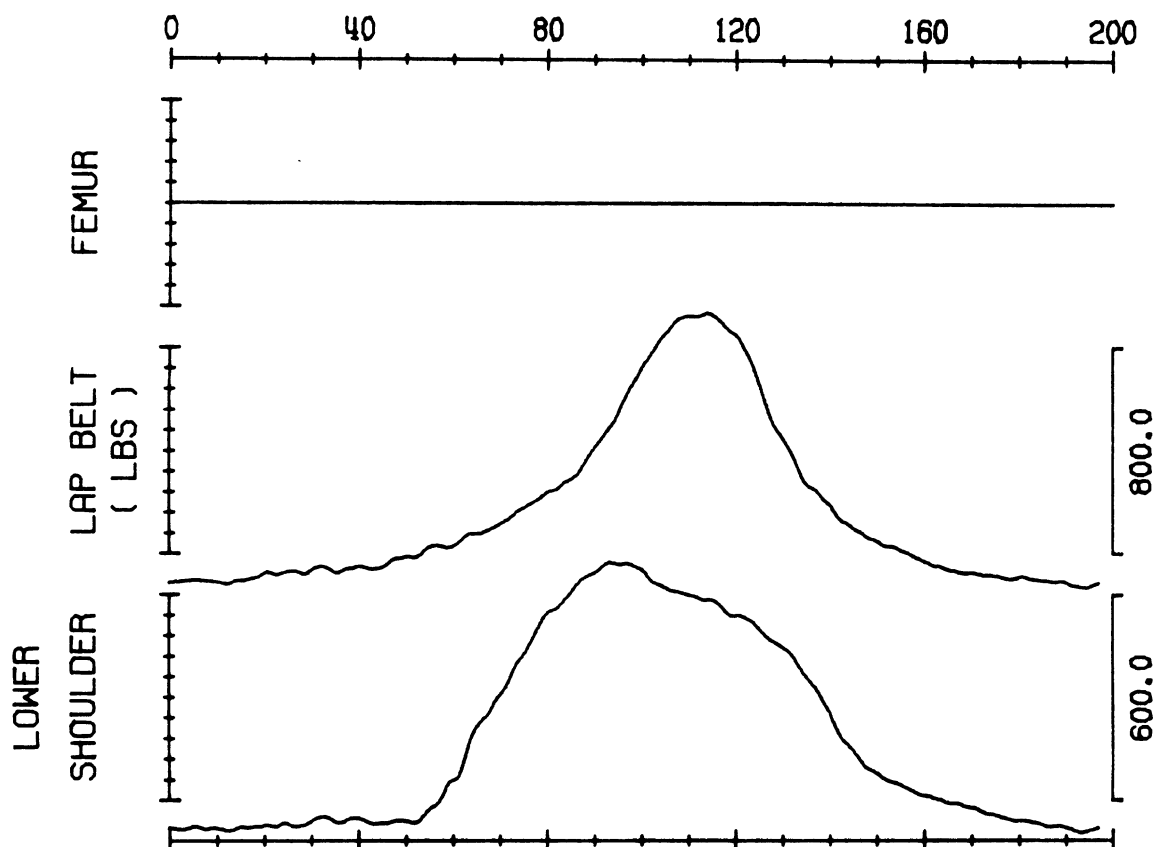
A-P



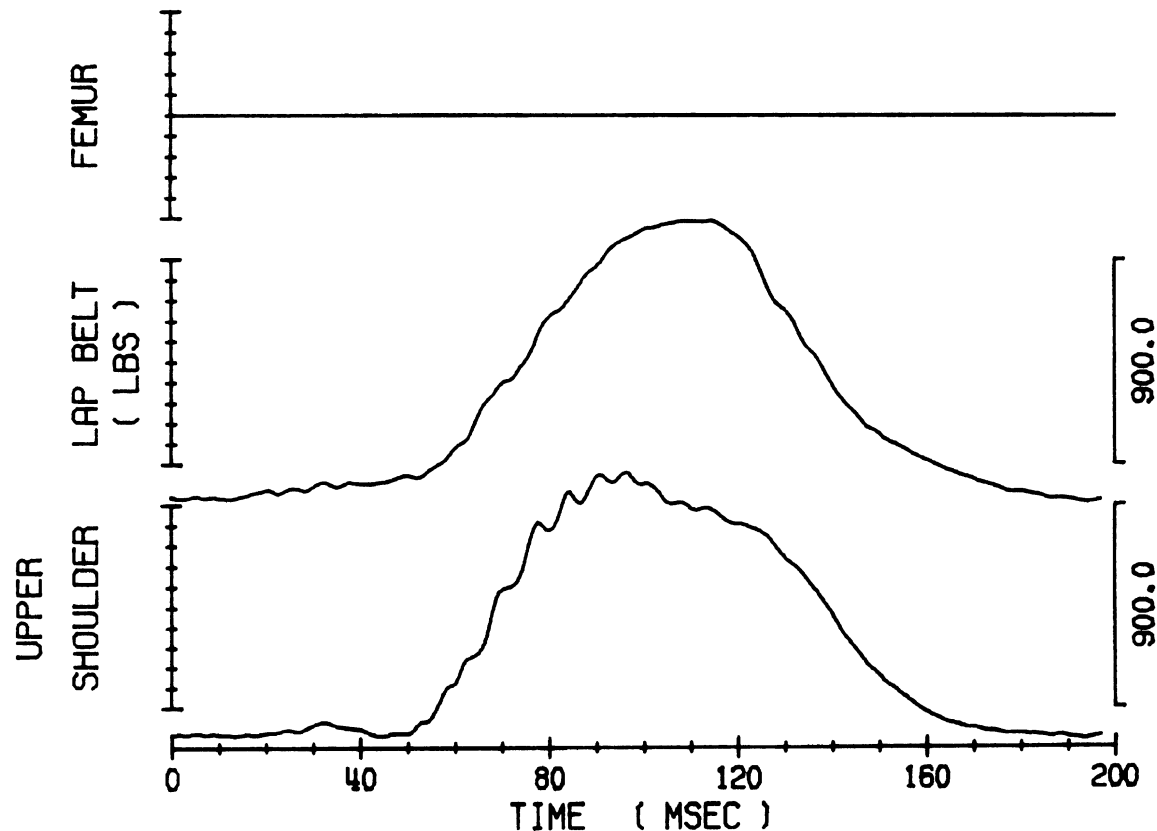
TIME (MSEC)

MEASURED ACCELERATIONS

RIGHT SIDE



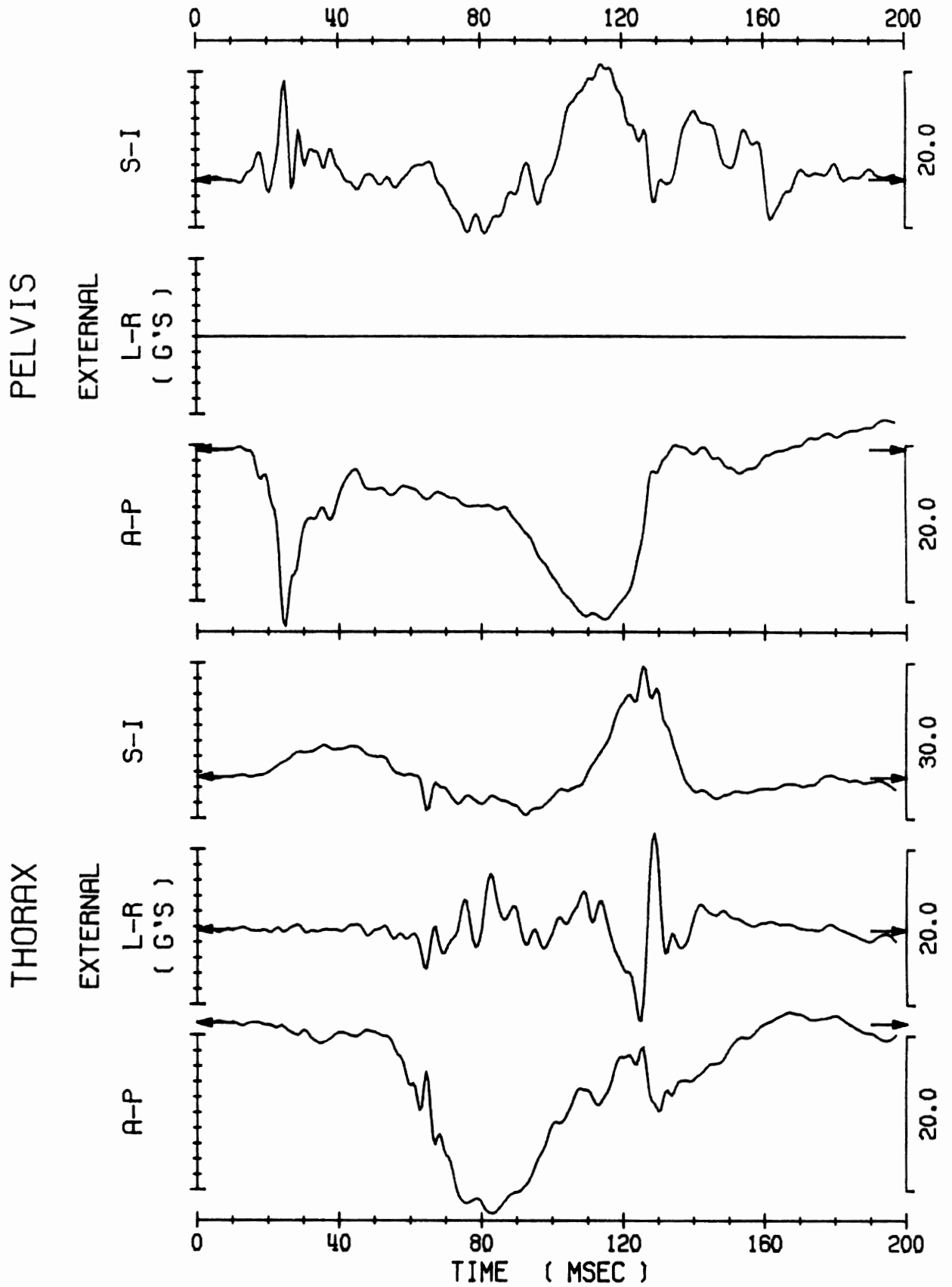
LEFT SIDE



MEASURED FORCES

FILE: 254

A-894-2: DM3X-M



MEASURED ACCELERATIONS

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: A-895
=====

SUBJECT: DM3X-H

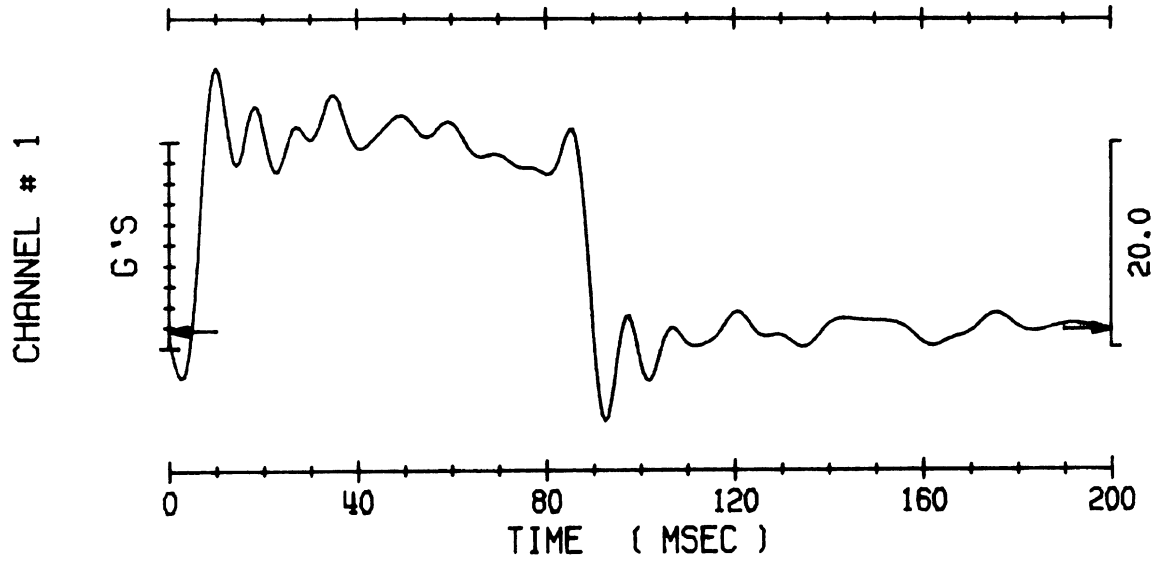
19.4 G-LEVEL
85. MS LONG
32.2 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1814. | 1433. | 2711. | 2284. | 873. | 984. |
| (LBS) @ (MS) | 82.0 | 79.5 | 80.1 | 80.1 | 16.4 | 15.7 |

| | RESULTANT PEAK | (A-D) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 60. | -4. | 11. | -8. | 15. | -56. | 3. |
| (G'S) @ (MS) | 78.2 | 48.4 | 80.0 | 58.3 | 73.8 | 77.4 | 104.1 |
| GSI= | 590 | | | | | | |
| IN PELVIS ACC: | 41. | -5. | 12. | -40. | 1. | -9. | 5. |
| (G'S) @ | 58.3 | 67.5 | 92.8 | 60.0 | 160.1 | 92.1 | 102.7 |
| EX THORAX ACC: | 41. | -40. | 1. | -9. | 9. | -10. | 21. |
| (G'S) @ | 58.2 | 59.8 | 158.6 | 104.0 | 93.1 | 116.0 | 92.6 |
| GSI= | 342 | | | | | | |
| EX PELVIS ACC: | 0. | -51. | 9. | 0. | 0. | -16. | 23. |
| (G'S) @ | 0.0 | 77.7 | 103.2 | 0.0 | 0.0 | 56.6 | 76.4 |
| | | | | | | | |
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

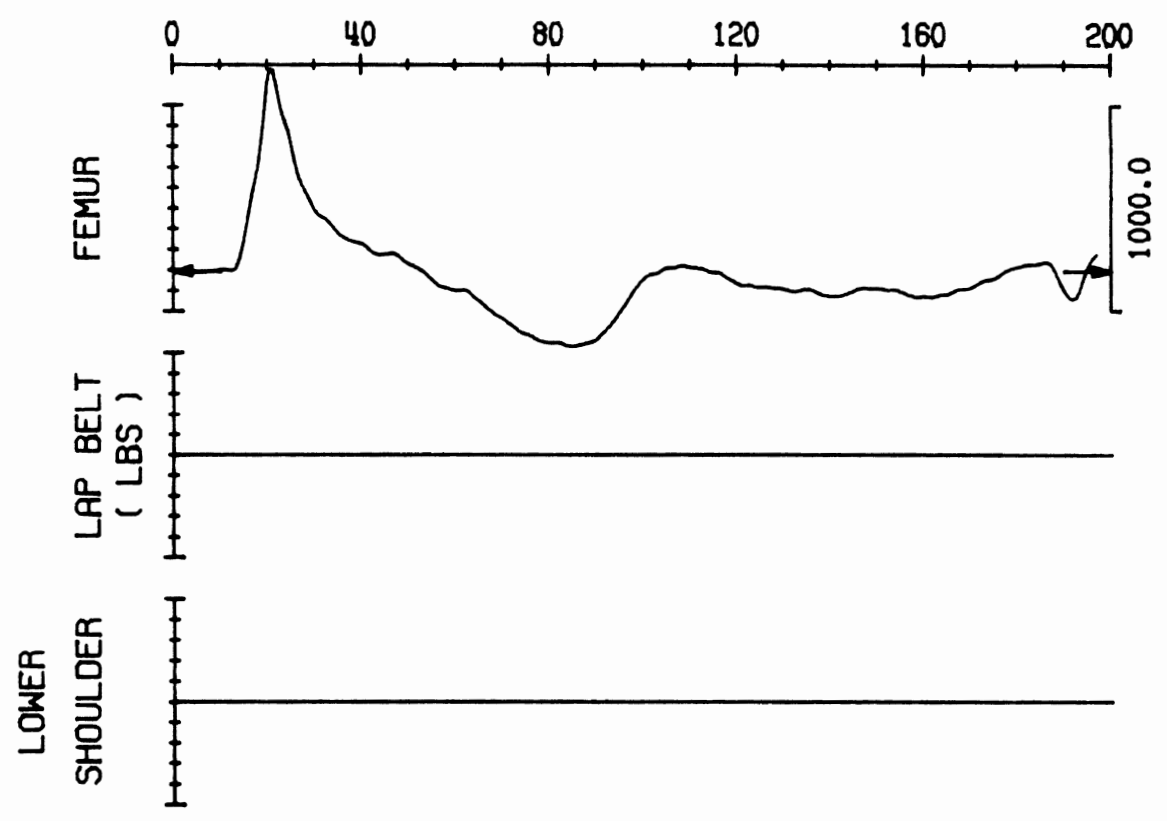
FILE: 255

A-895-1: DM3X-H

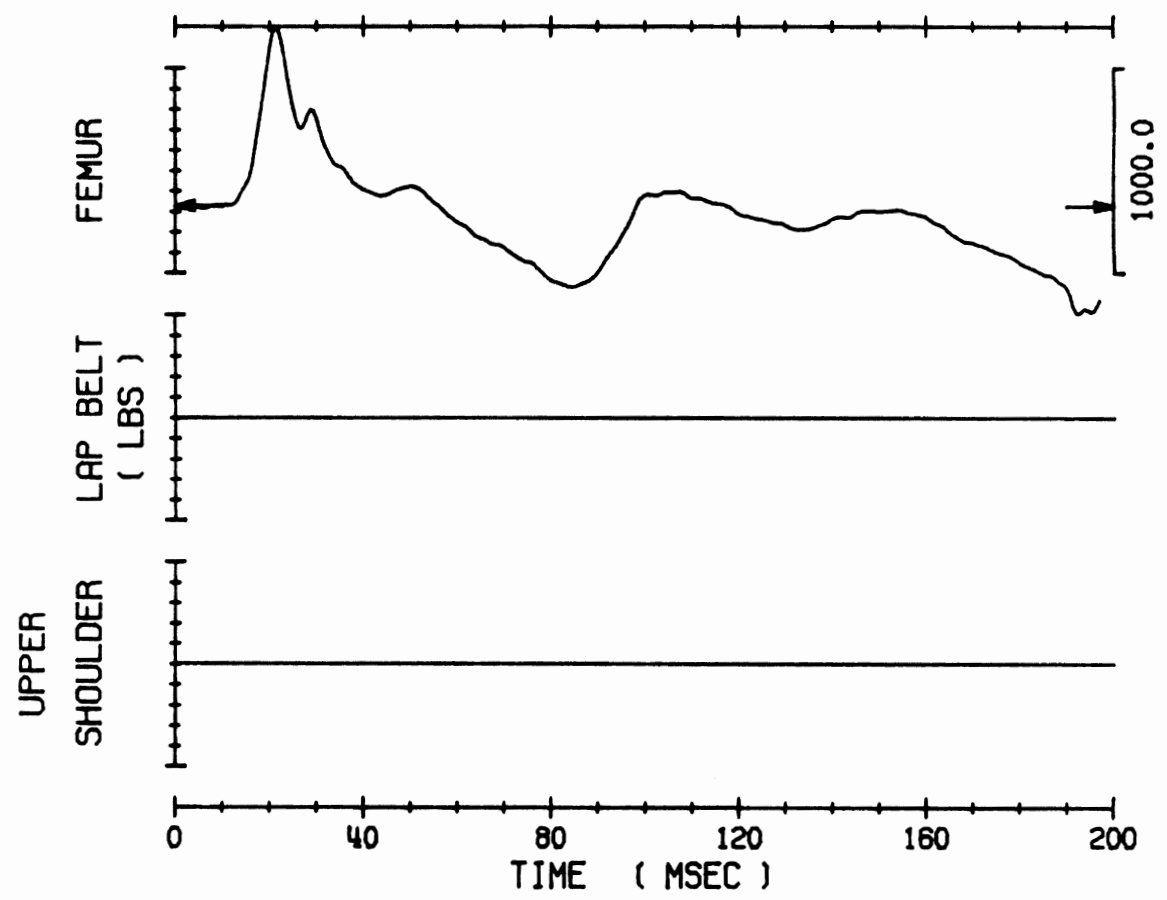


SLED DECLERATION

RIGHT SIDE



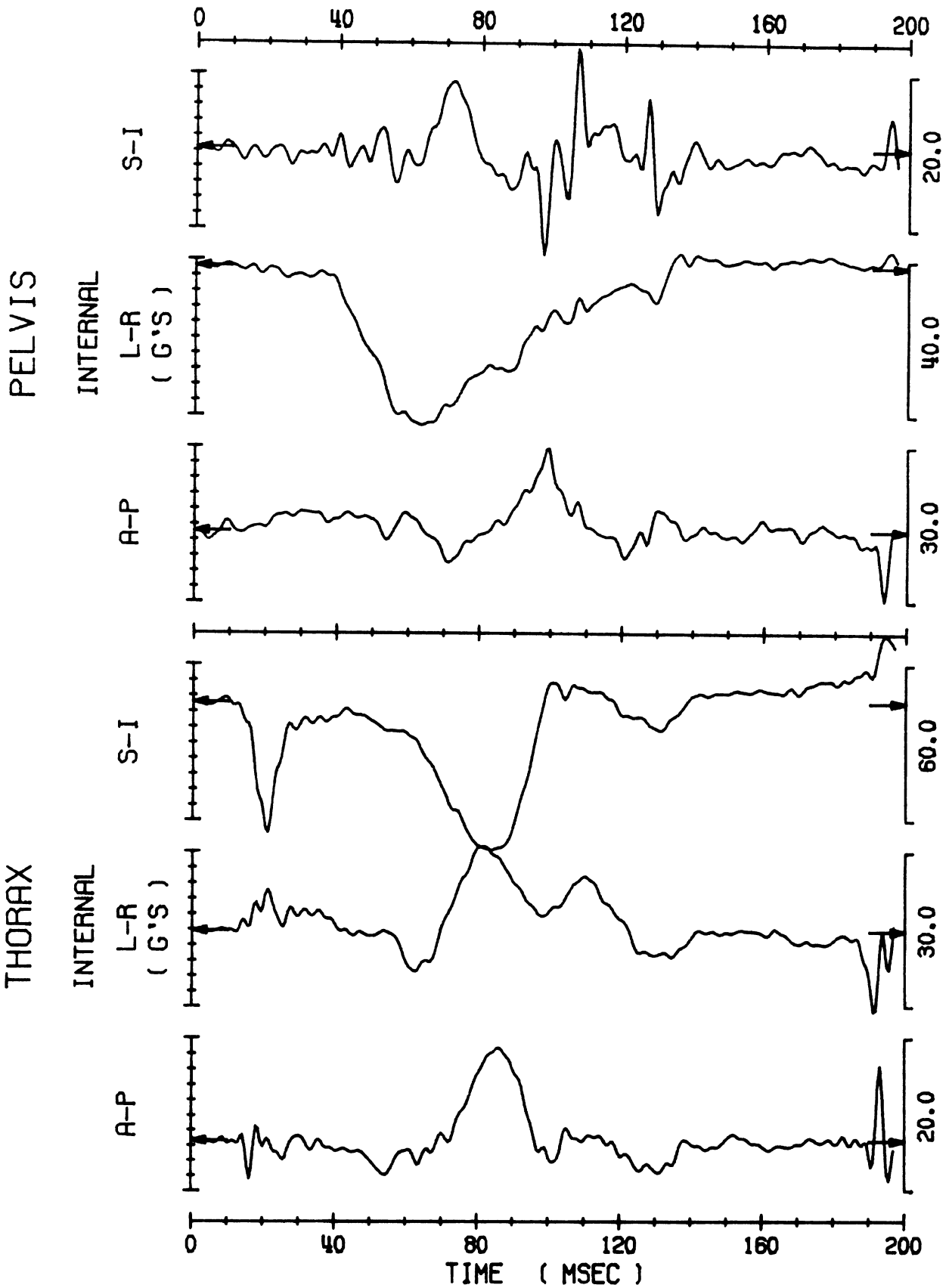
LEFT SIDE



MEASURED FORCES

FILE: 257

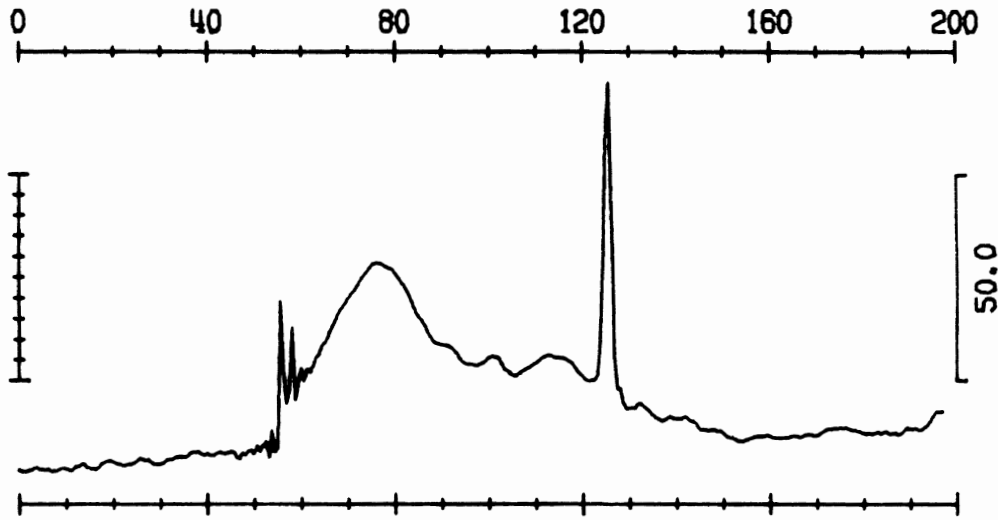
A-895-1: DM3X-H



MEASURED ACCELERATIONS

RESULTANT

GSI = 620
HIC = 462



HEAD STD TRIAX

READINGS
L-R
(G'S)

S-I



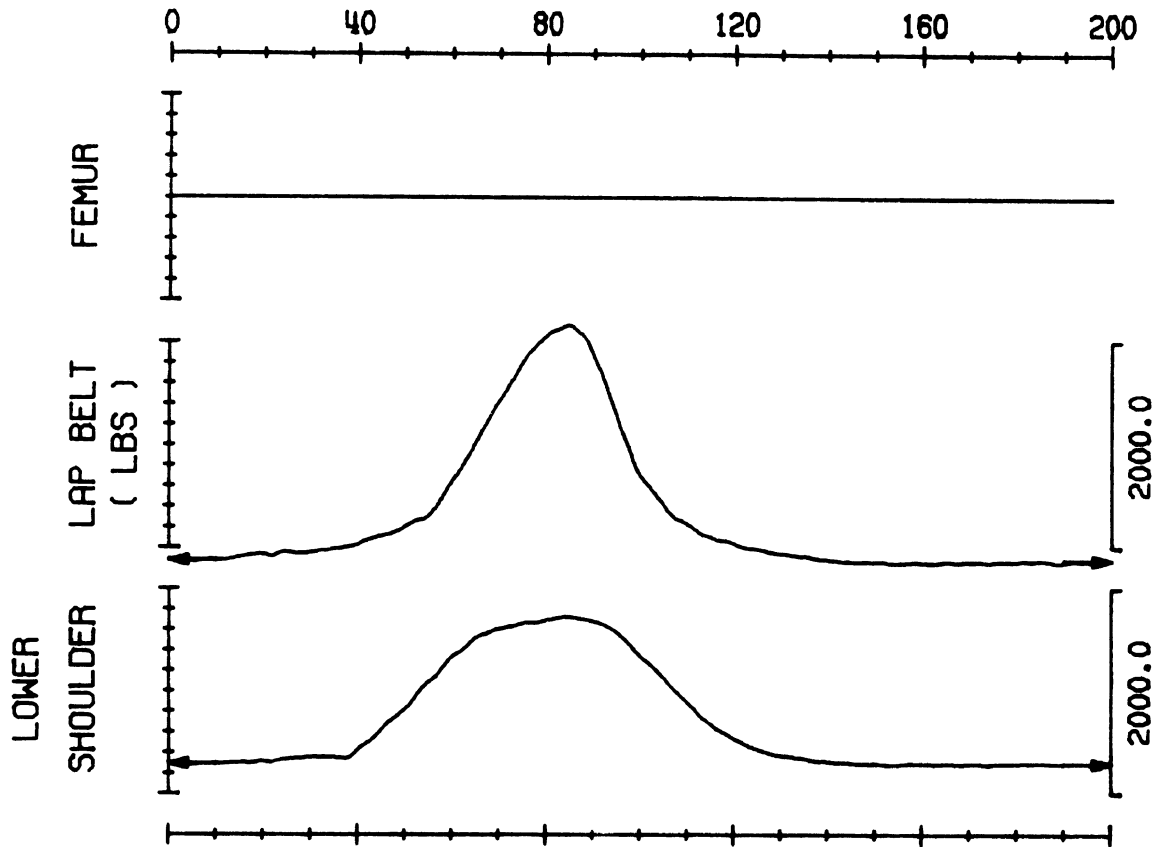
A-P



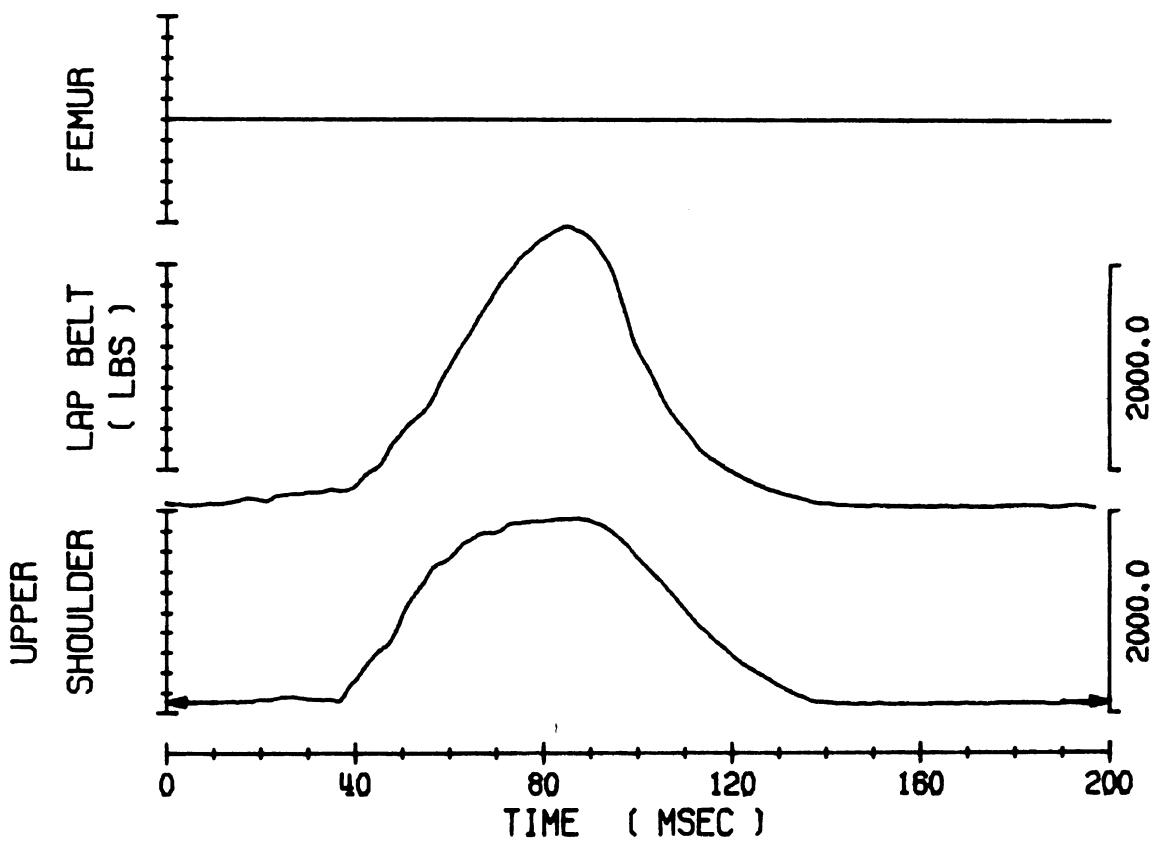
TIME (MSEC)

MEASURED ACCELERATIONS

RIGHT SIDE



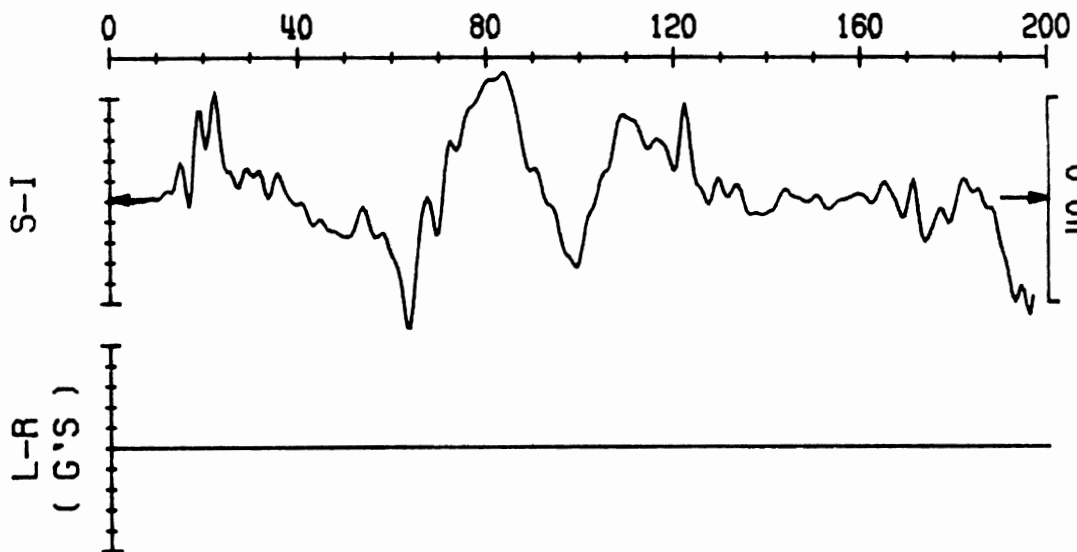
LEFT SIDE



MEASURED FORCES

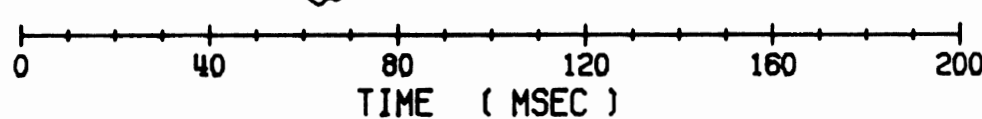
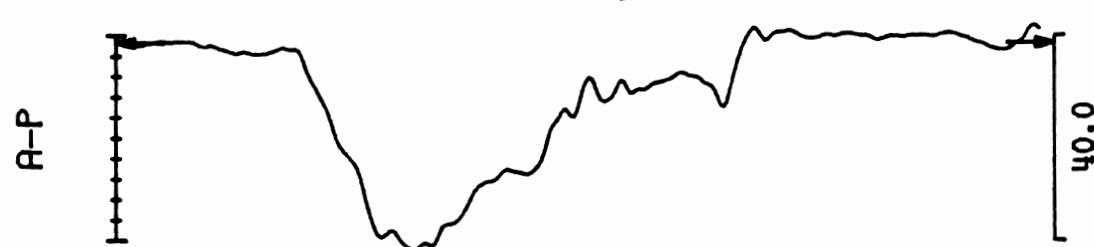
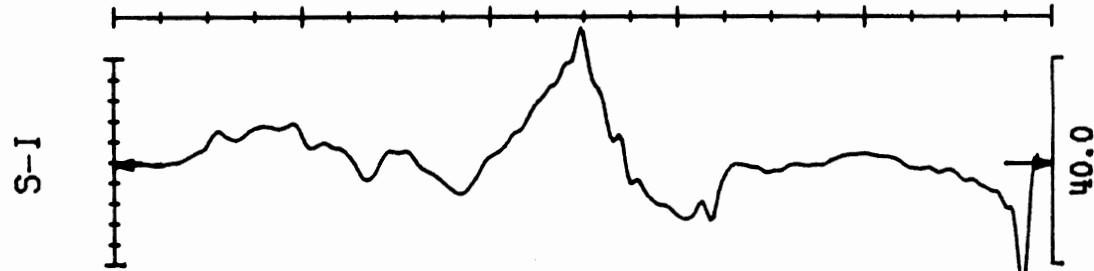
PELVIS

EXTERNAL



THORAX

EXTERNAL



MEASURED ACCELERATIONS

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: A-396

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=====

SUBJECT: D43X-H

19.3 G-LEVEL

86. MS LONG

32.2 MPH DV

| | SHOULDER BRIT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1931. | 1514. | 2578. | 1996. | 934. | 1021. |
| (LBS) @ (MS) | 82.6 | 84.5 | 79.5 | 80.7 | 17.6 | 17.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 56. | -5. | 12. | -5. | 14. | -52. | 7. |
| (G'S) @ (MS) | 78.8 | 122.0 | 83.1 | 57.2 | 77.7 | 77.7 | 103.0 |
| GSI= | 514 | | | | | | |
| IN PELVIS ACC: | 41. | -5. | 10. | -39. | 4. | -12. | 6. |
| (G'S) @ | 56.3 | 67.4 | 91.7 | 59.7 | 132.8 | 89.0 | 100.3 |
| EX THORAX ACC: | 82. | -39. | 33. | -14. | 15. | -10. | 17. |
| (G'S) @ | 120.7 | 59.8 | 120.2 | 120.5 | 90.2 | 115.2 | 91.4 |
| GSI= | 410 | | | | | | |
| EX PELVIS ACC: | 0. | -47. | 5. | 0. | 0. | -13. | 23. |
| (G'S) @ | 0.0 | 78.5 | 148.4 | 0.0 | 0.0 | 57.8 | 76.0 |

.....

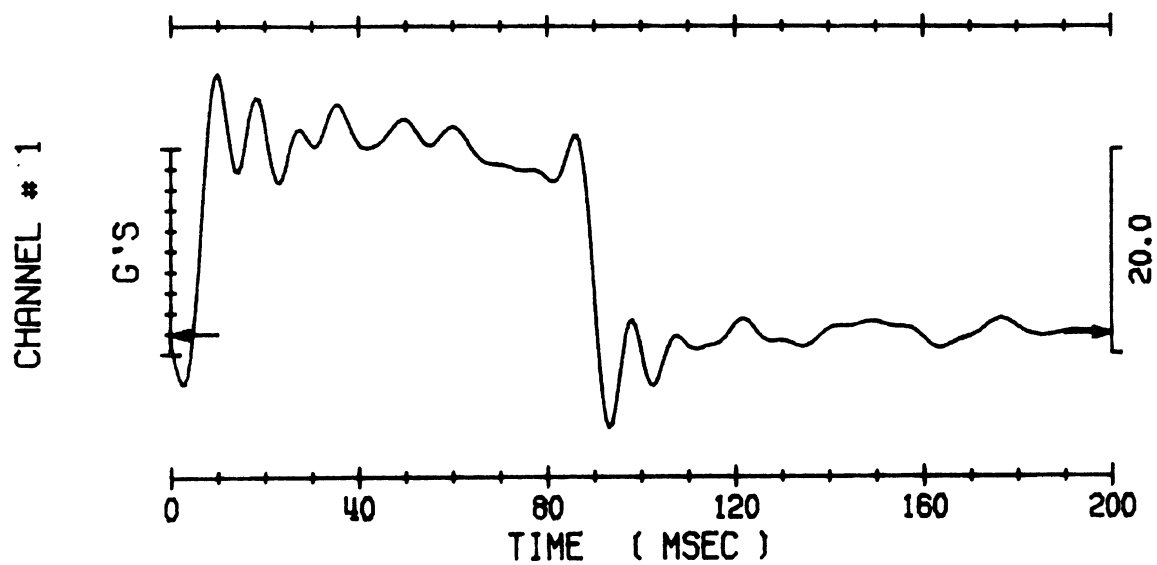
| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |

.....

| | | | | | | | |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

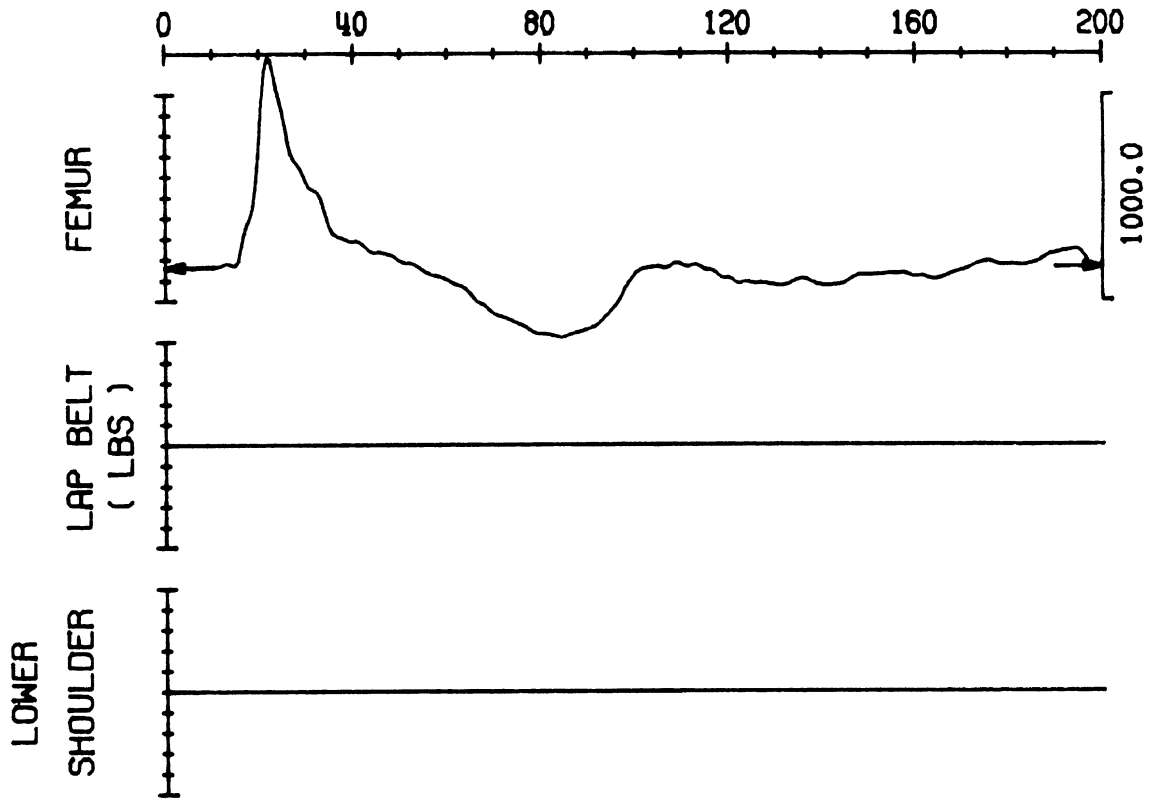
FILE: 261

A-896-1: DM3X-H

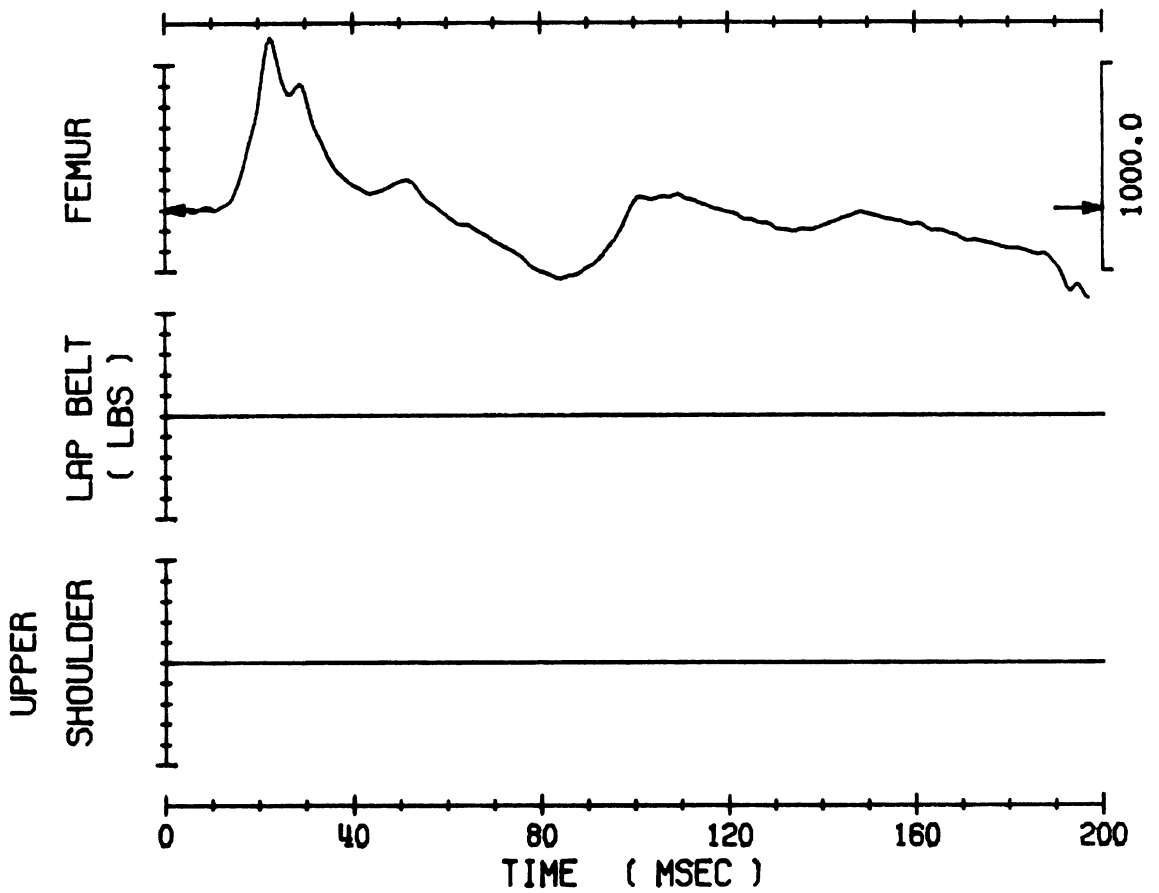


SLED DECLERATION

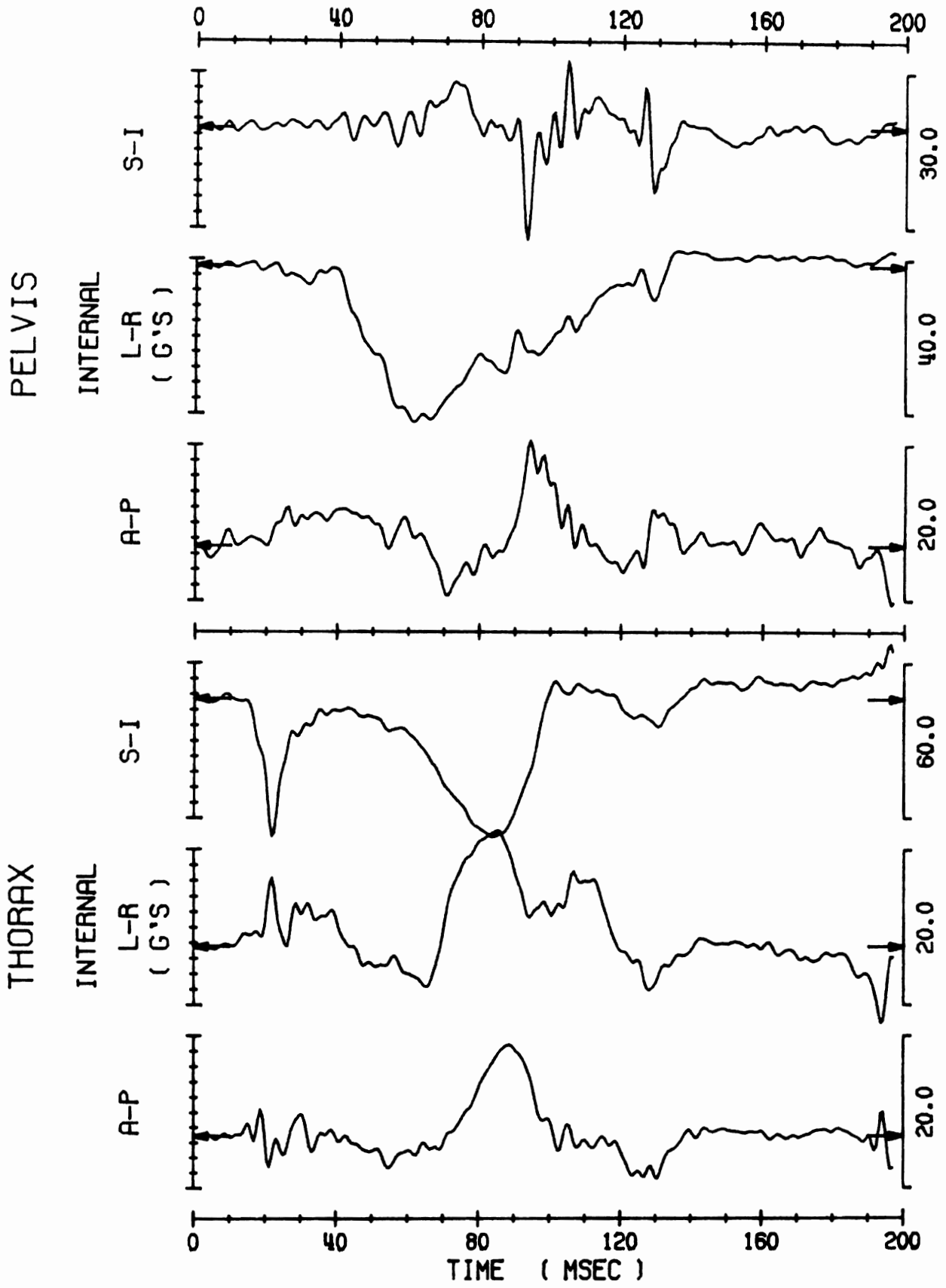
RIGHT SIDE



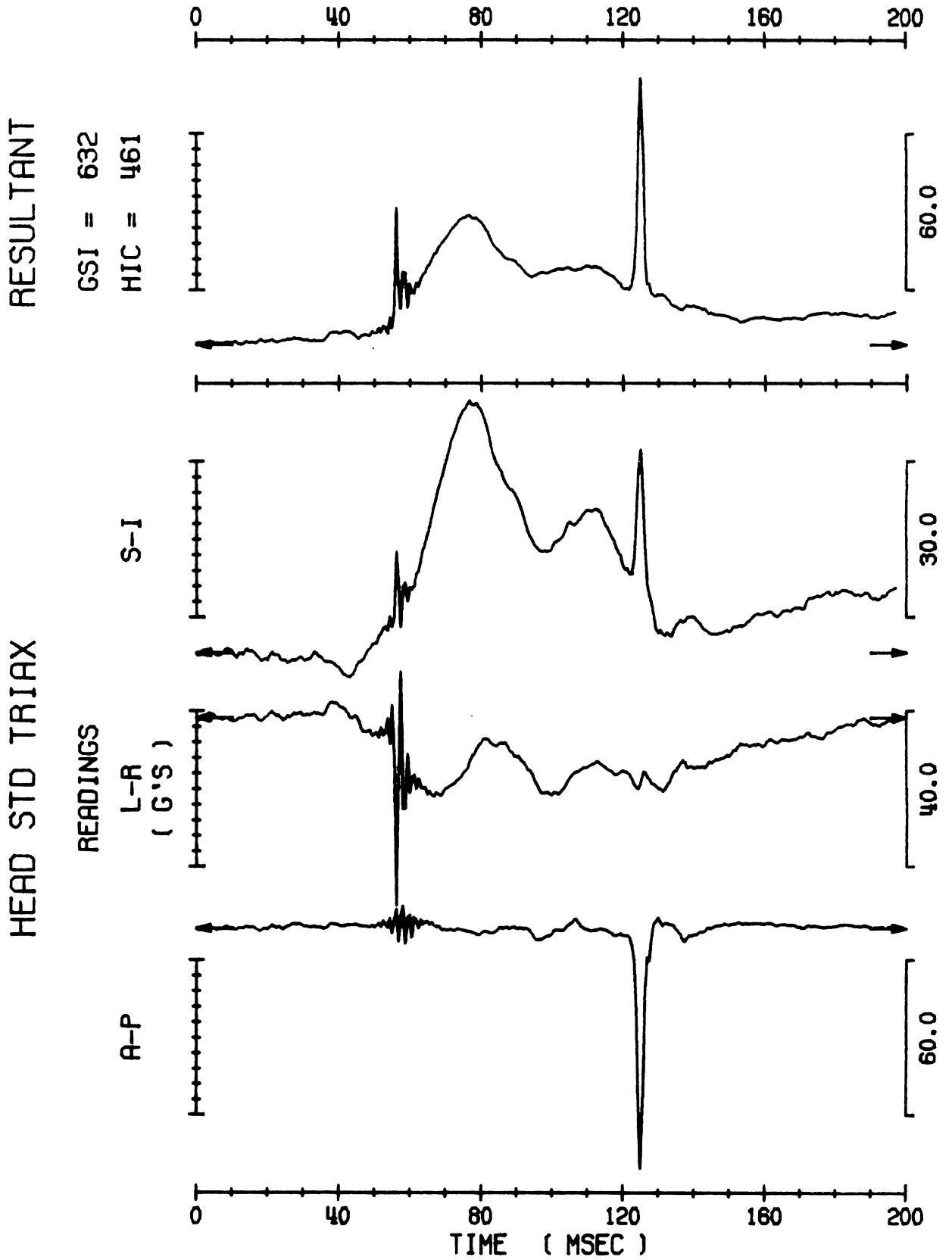
LEFT SIDE



MEASURED FORCES

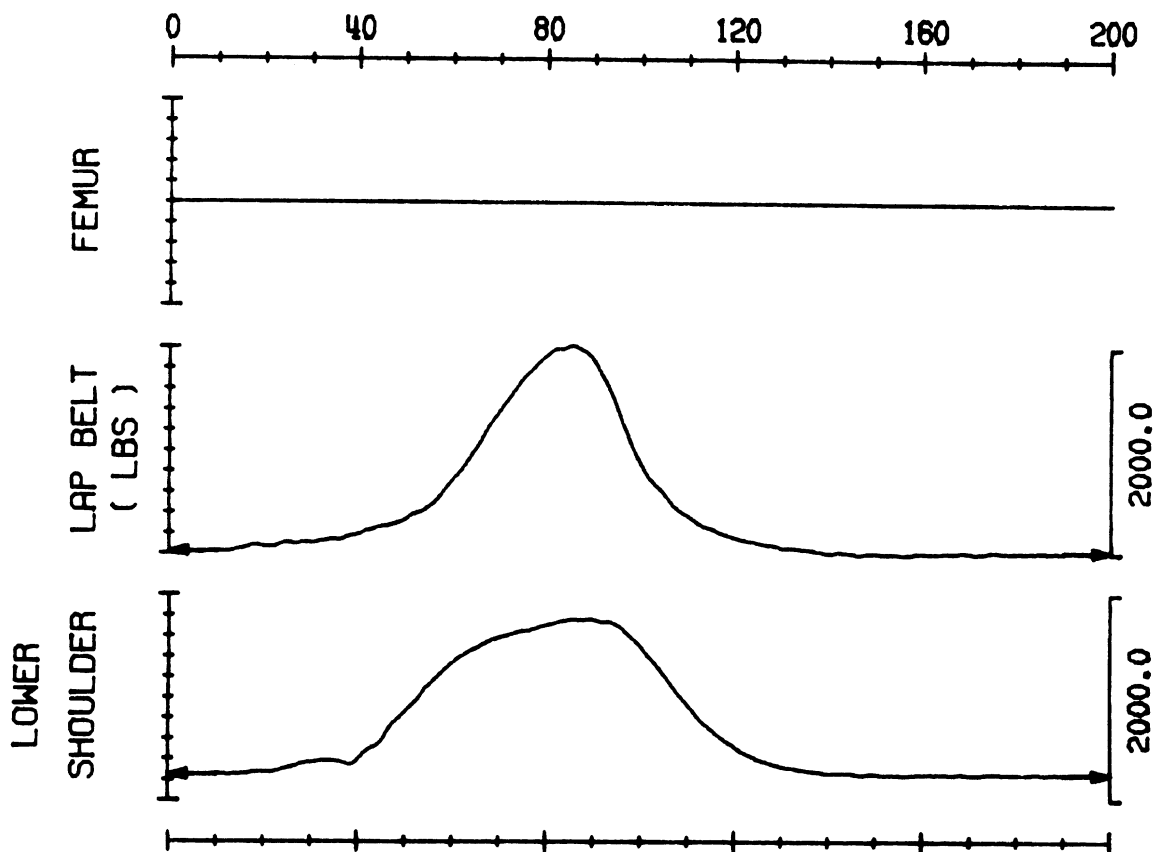


MEASURED ACCELERATIONS

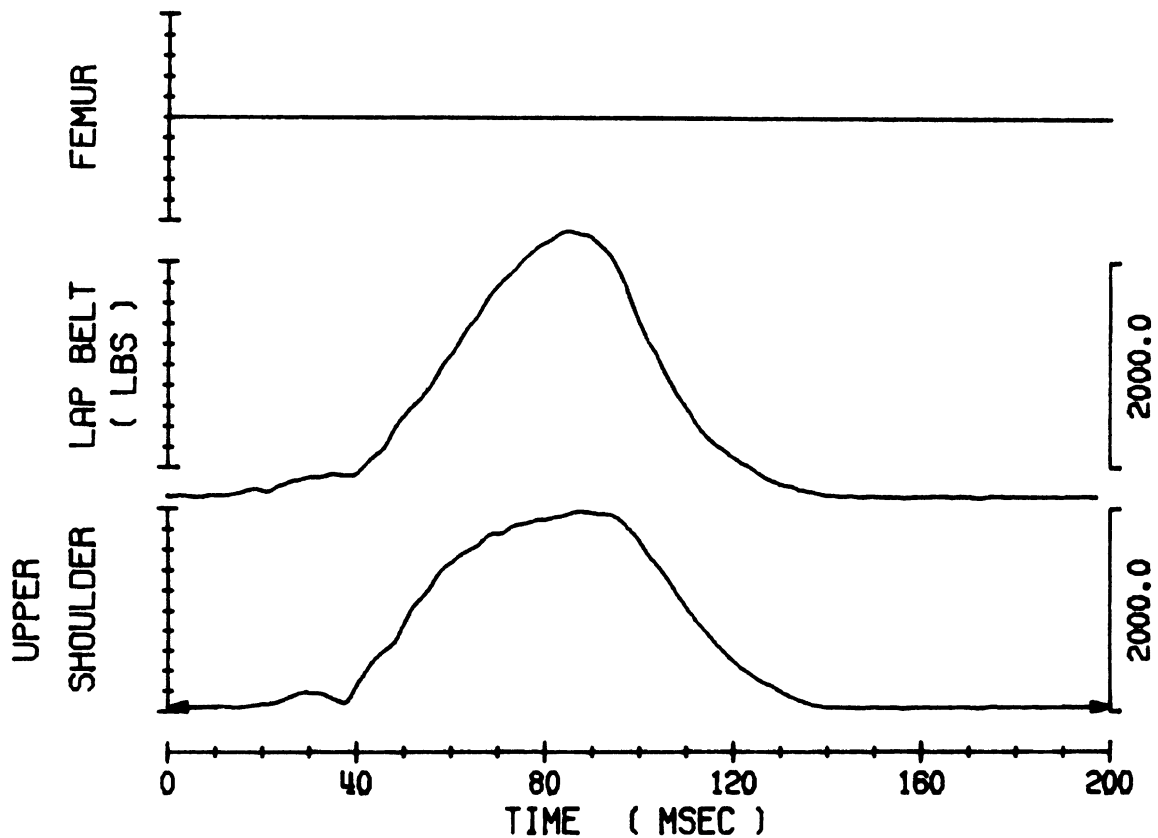


MEASURED ACCELERATIONS

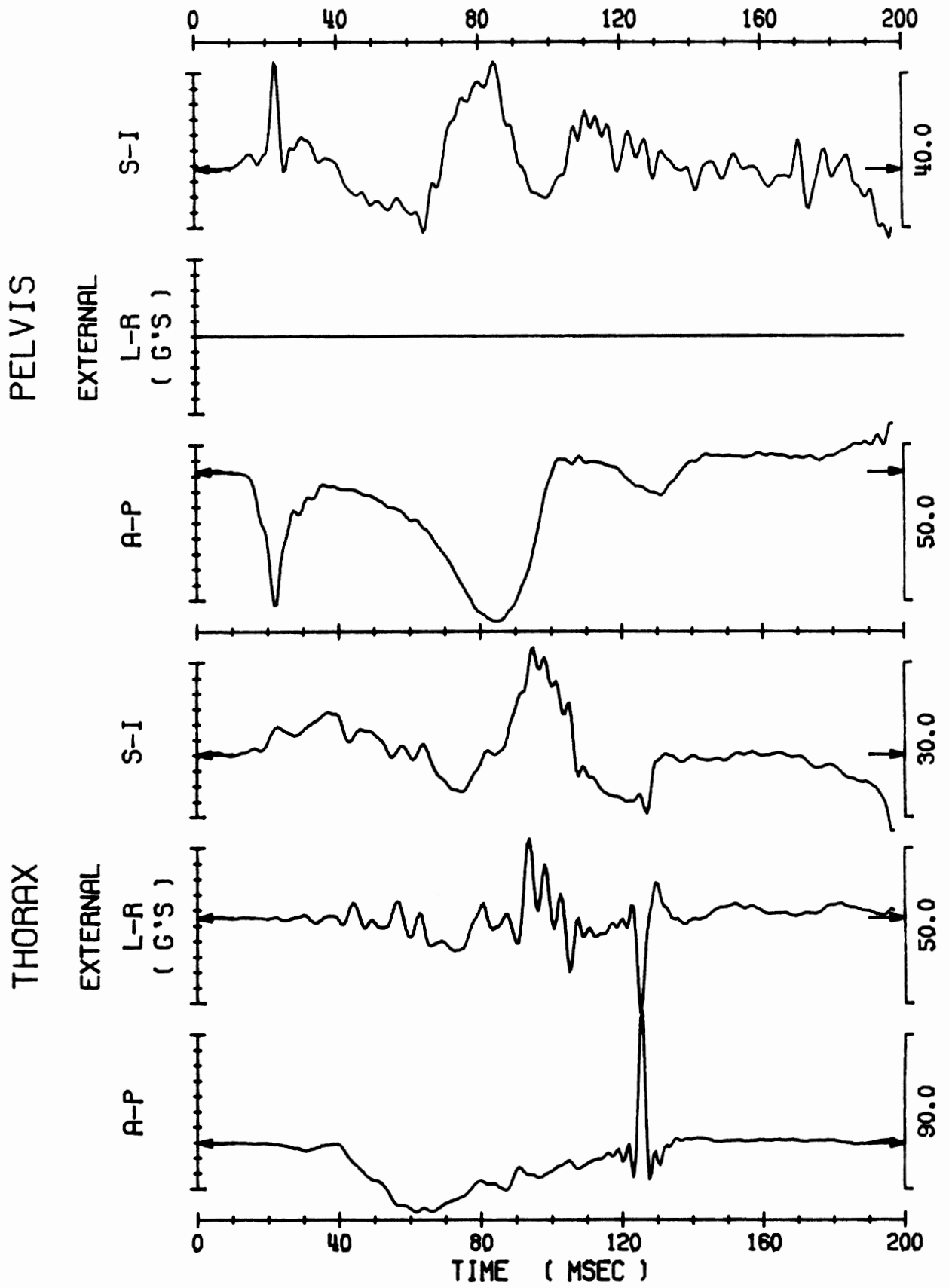
RIGHT SIDE



LEFT SIDE



MEASURED FORCES



MEASURED ACCELERATIONS

C-228

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: A-897

SUBJECT: DM3X-H

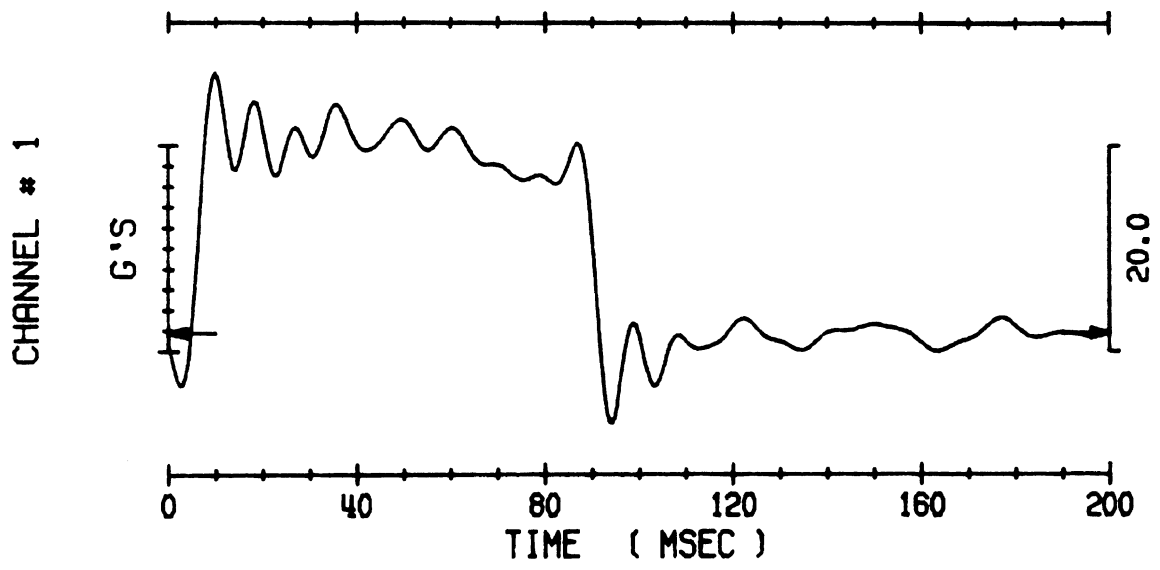
18.9 G-LEVEL
 87. MS LONG
 31.5 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1366. | 1453. | 2770. | 2326. | 796. | 901. |
| (LBS) @ (MS) | 82.0 | 83.8 | 78.8 | 78.2 | 16.3 | 16.3 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 61. | -2. | 13. | -3. | 16. | -57. | 10. |
| (G'S) @ (MS) | 78.2 | 47.2 | 79.8 | 122.2 | 77.9 | 76.6 | 102.9 |
| GSI= | 573 | | | | | | |
| IN PELVIS ACC: | 41. | -4. | 13. | -40. | 4. | -11. | 10. |
| (G'S) @ | 58.8 | 65.5 | 92.7 | 59.1 | 131.3 | 89.9 | 106.9 |
| EX THORAX ACC: | 41. | -39. | 3. | -11. | 17. | -14. | 22. |
| (G'S) @ | 58.8 | 58.9 | 149.4 | 108.4 | 90.6 | 117.2 | 93.5 |
| GSI= | 357 | | | | | | |
| EX PELVIS ACC: | 0. | -52. | 8. | 0. | 0. | -11. | 24. |
| (G'S) @ | 0.0 | 77.0 | 105.6 | 0.0 | 0.0 | 46.4 | 75.2 |
| | | | | | | | |
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

FILE: 267

A-897-1: DM3X-H



SLED DECLERATION

LEFT SIDE

RIGHT SIDE

UPPER
SHOULDER

LAP BELT
(LBS)

FEMUR

LOWER
SHOULDER

LAP BELT
(LBS)

FEMUR

0
40
80
120
160
200
TIME (MSEC)

0
40
80
120
160
200

900.0

1000.0

FILE: 268

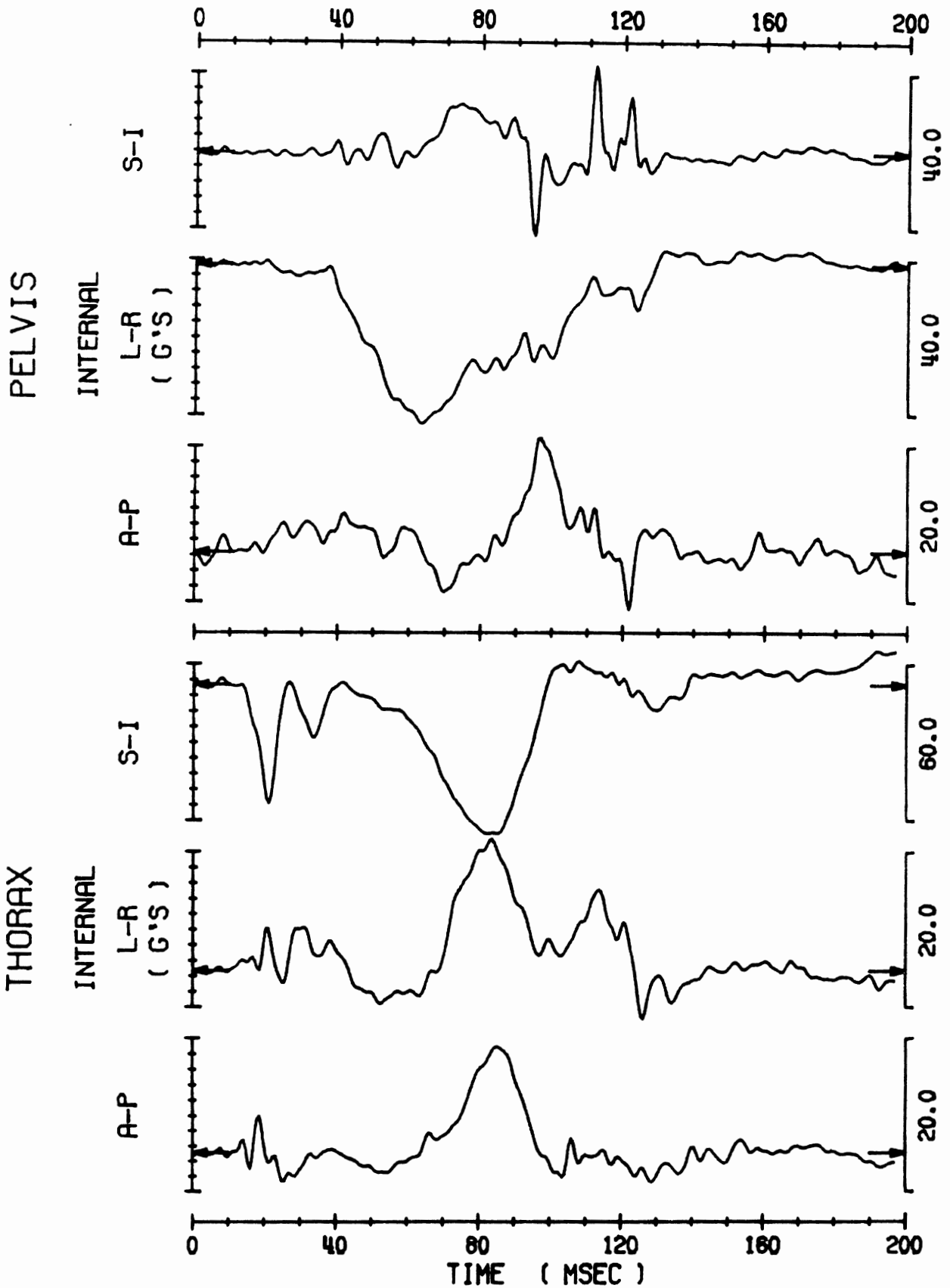
R-897-1: DM3X-H

MEASURED FORCES

C-231

FILE: 269

A-897-1: DM3X-H

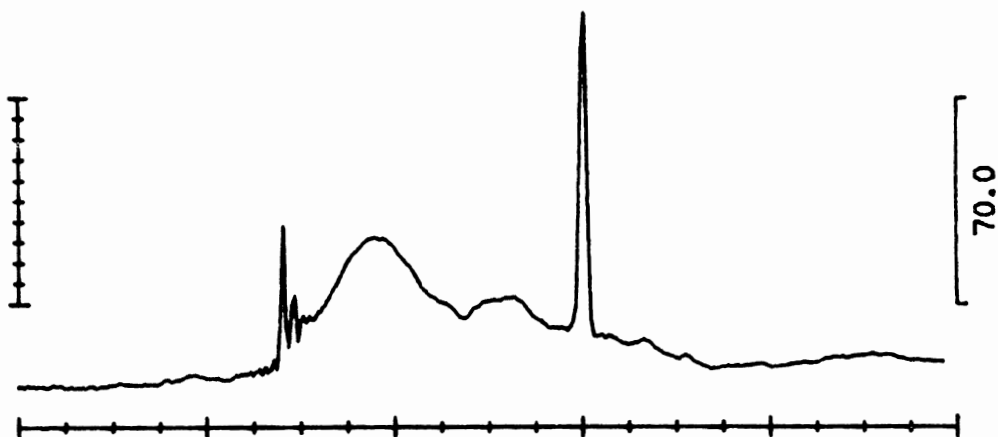


MEASURED ACCELERATIONS

RESULTANT

GSI = 733
HIC = 469

0 40 80 120 160 200



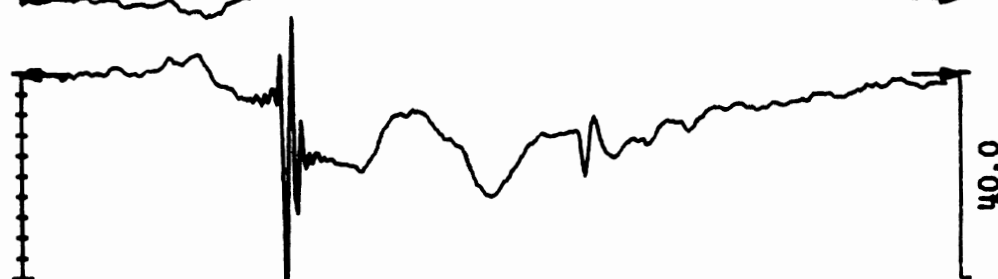
HEAD STD TRIAX

READINGS

L-R
(G'S)

S-I

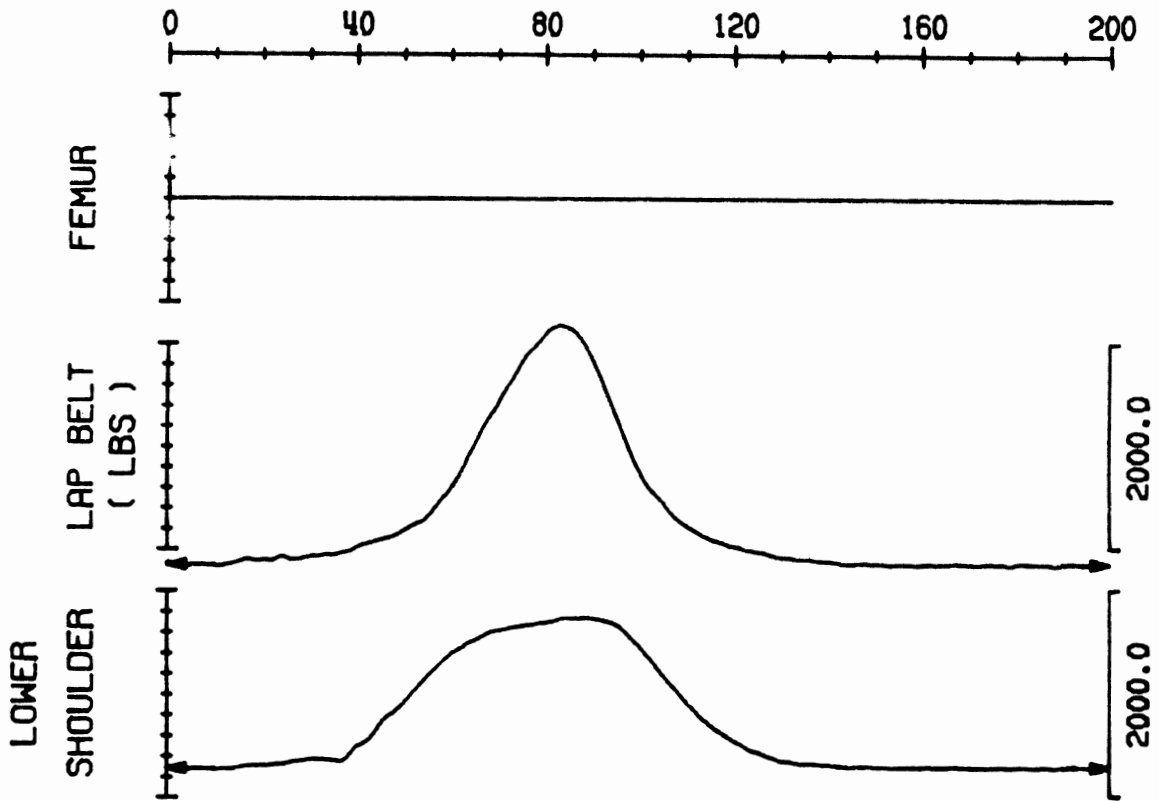
A-P



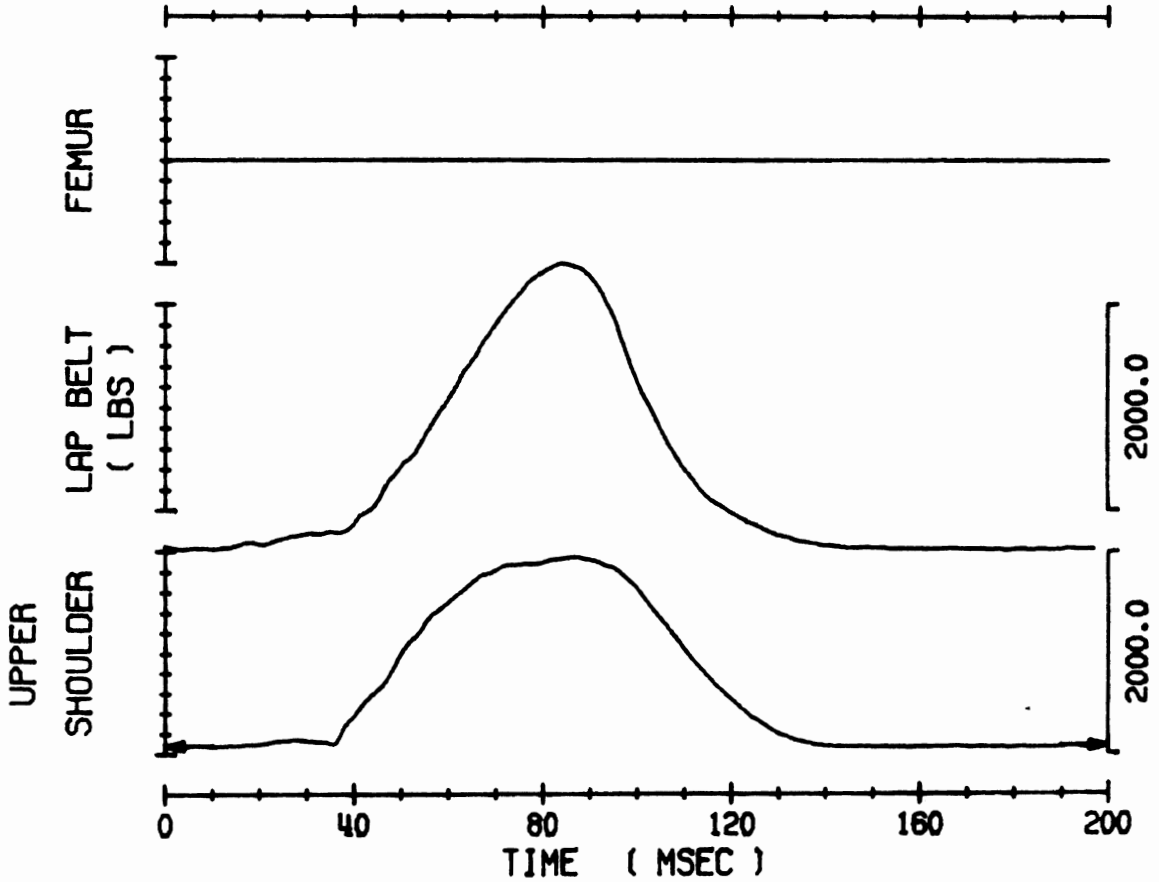
0 40 80 120 160 200
TIME (MSEC)

MEASURED ACCELERATIONS

RIGHT SIDE



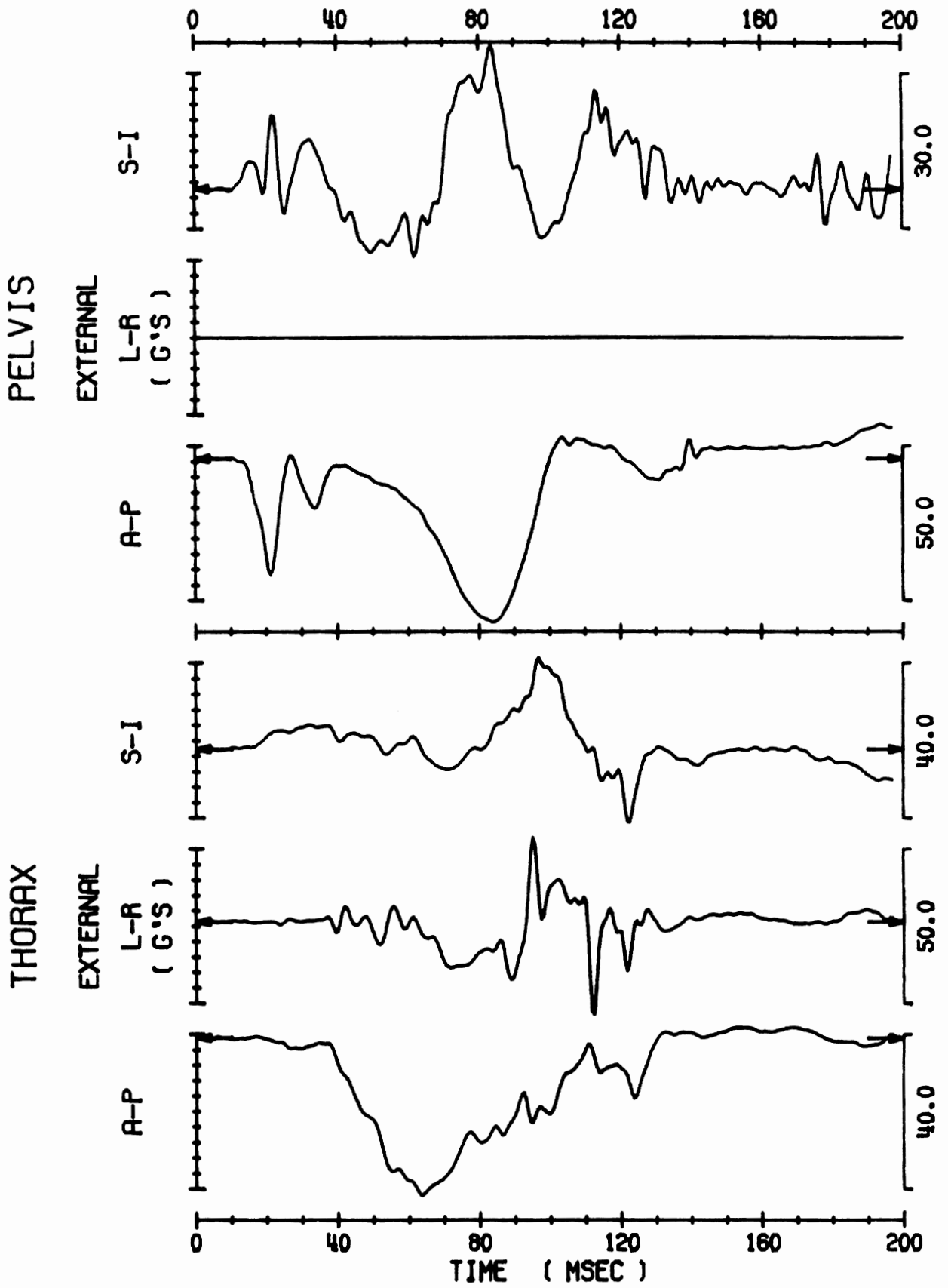
LEFT SIDE



MEASURED FORCES

FILE: 272

A-897-2: DM3X-H



MEASURED ACCELERATIONS

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: A-907
=====

SUBJECT: DM9X-L

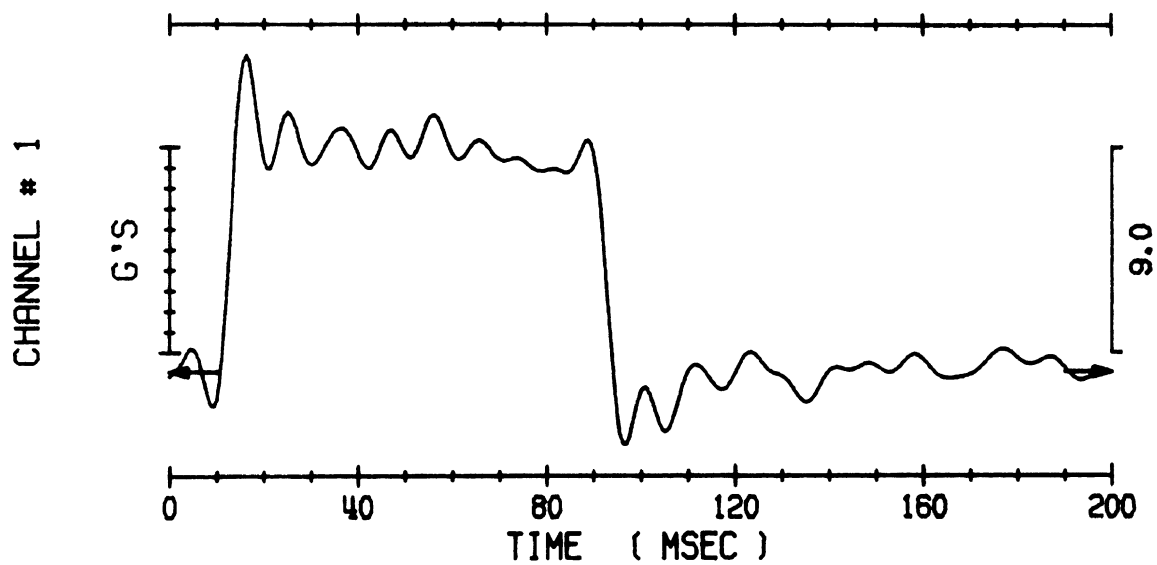
9.9 G-LEVEL
83. MS LONG
16.9 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 912. | 912. | 432. | 1329. | 0. | 0. |
| (LBS) @ (MS) | 72.3 | 72.3 | 88.0 | 86.7 | 0.0 | 0.0 |

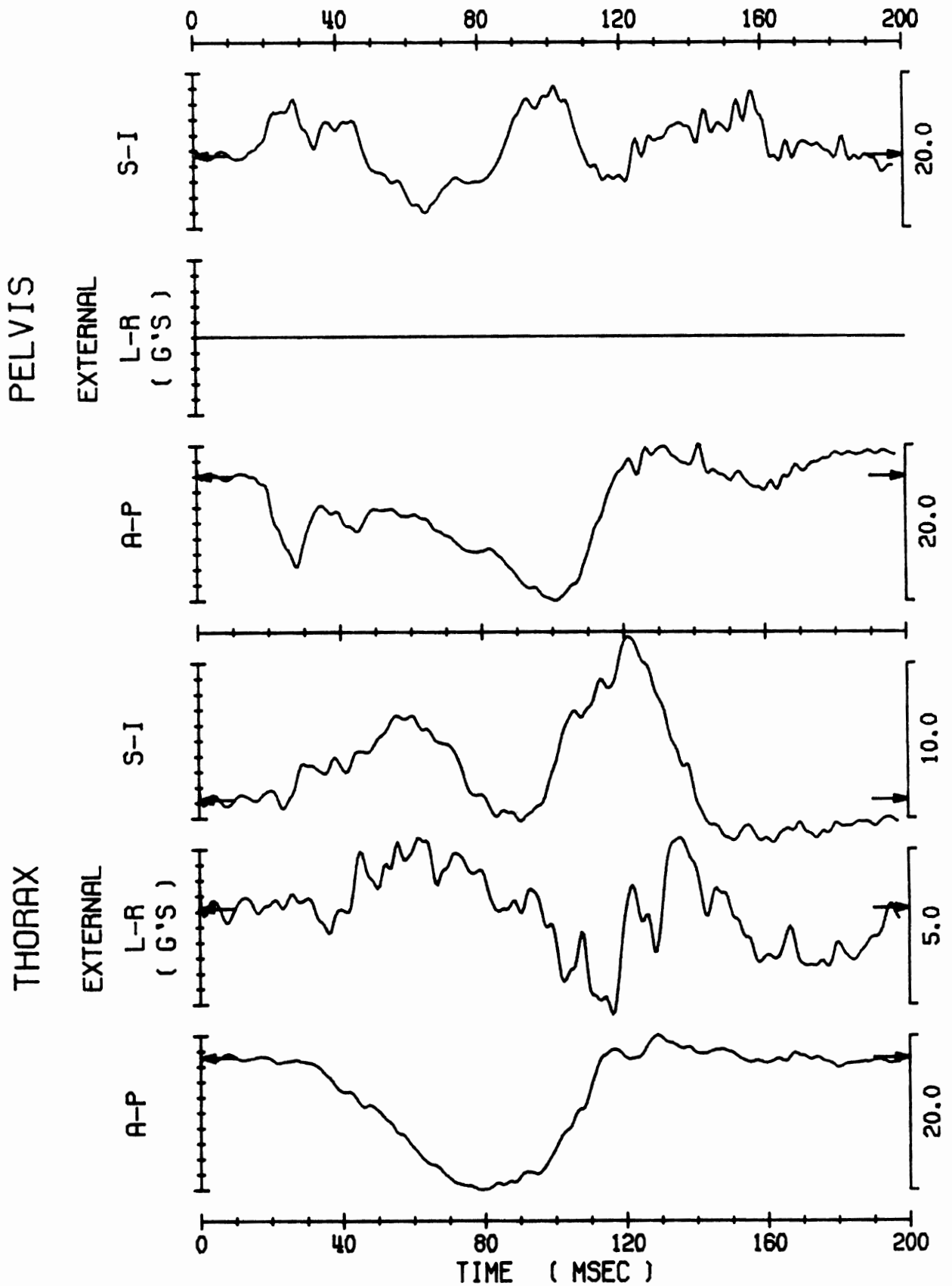
| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 17. | -17. | 2. | -3. | 2. | -3. | 9. |
| (G'S) @ | 67.9 | 69.7 | 120.7 | 103.0 | 125.1 | 146.9 | 110.1 |
| GSI= | 52 | | | | | | |
| EX PELVIS ACC: | 0. | -16. | 3. | 0. | 0. | -7. | 3. |
| (G'S) @ | 0.0 | 87.4 | 119.7 | 0.0 | 0.0 | 53.6 | 87.6 |
| | | | | | | | |
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

FILE: 280

A-907-2: DM9X-L



SLED DECELERATION



MEASURED ACCELERATIONS

LEFT SIDE

RIGHT SIDE

UPPER
SHOULDER

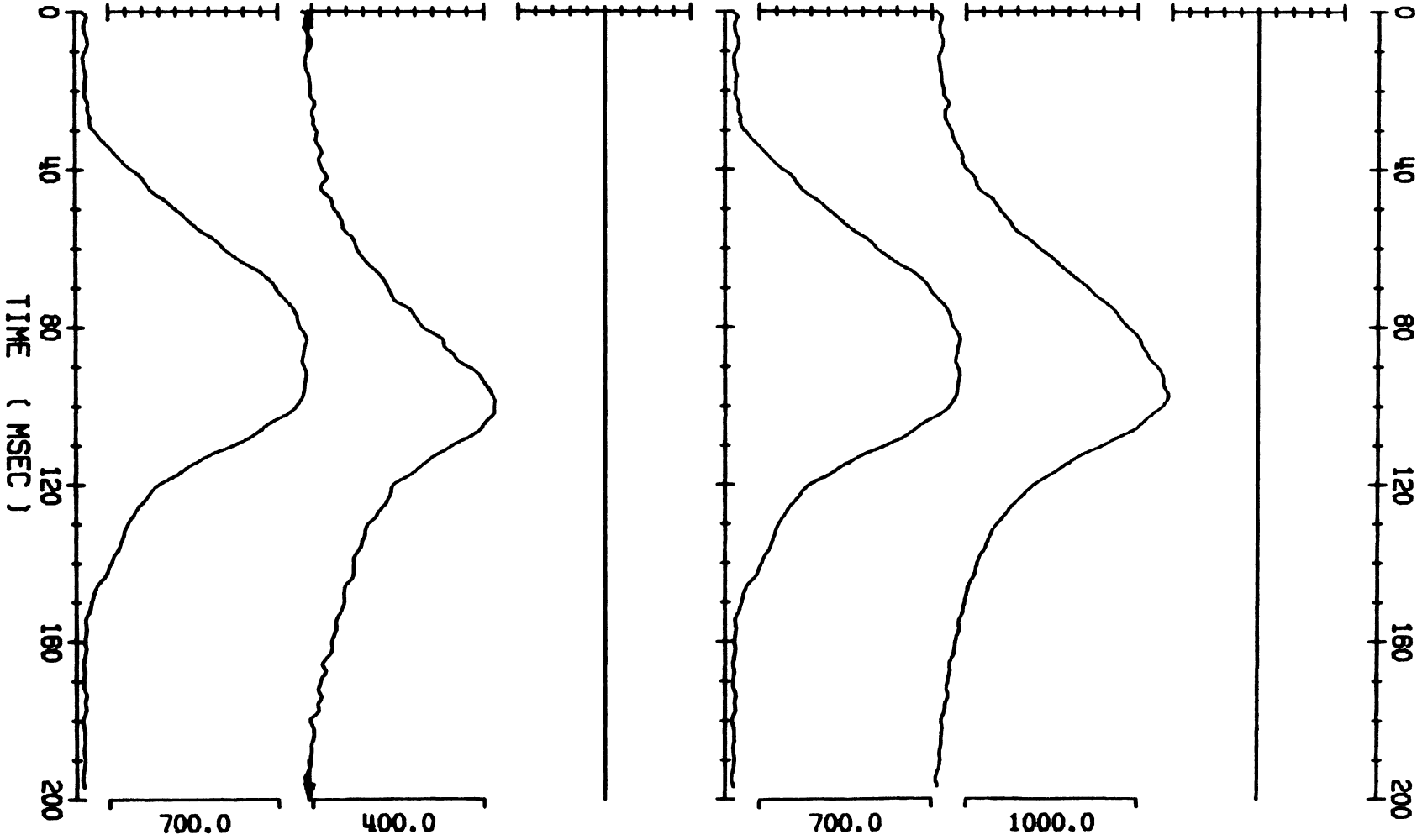
LAP BELT
(LBS)

FEMUR

LOWER
SHOULDER

LAP BELT
(LBS)

FEMUR



FILE: 282

R-907-2: DM9X-L

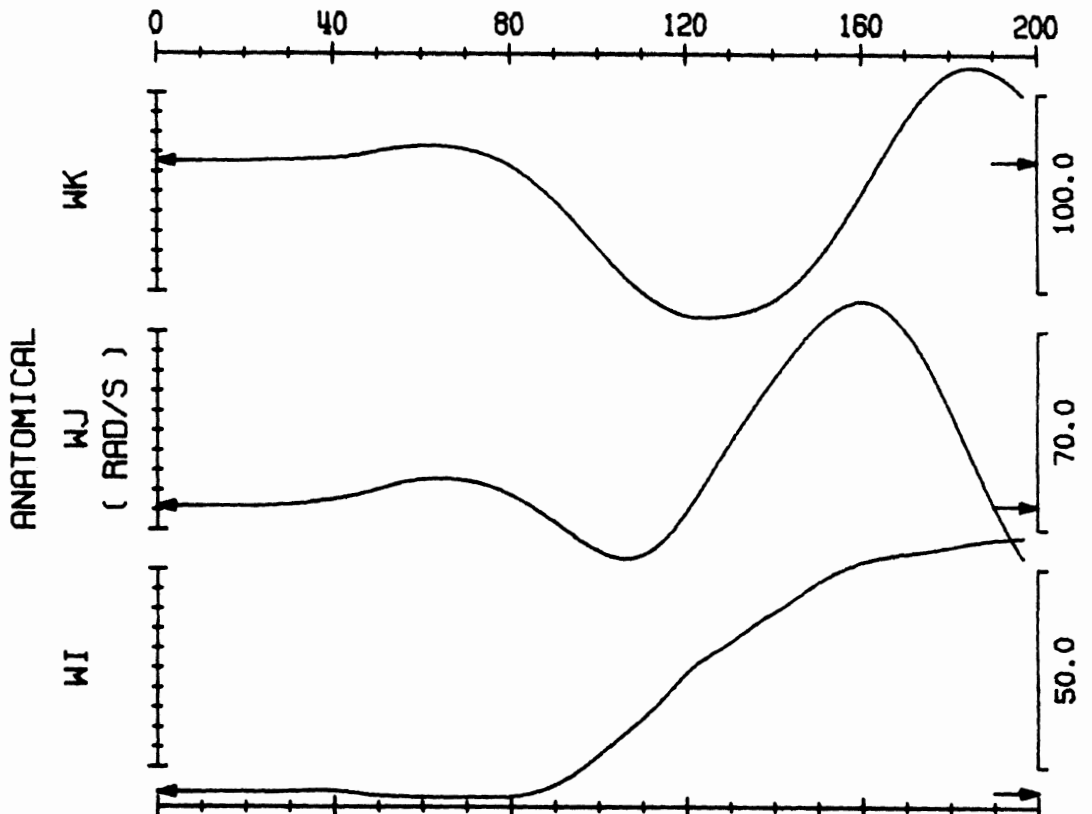
MEASURED FORCES

C-240

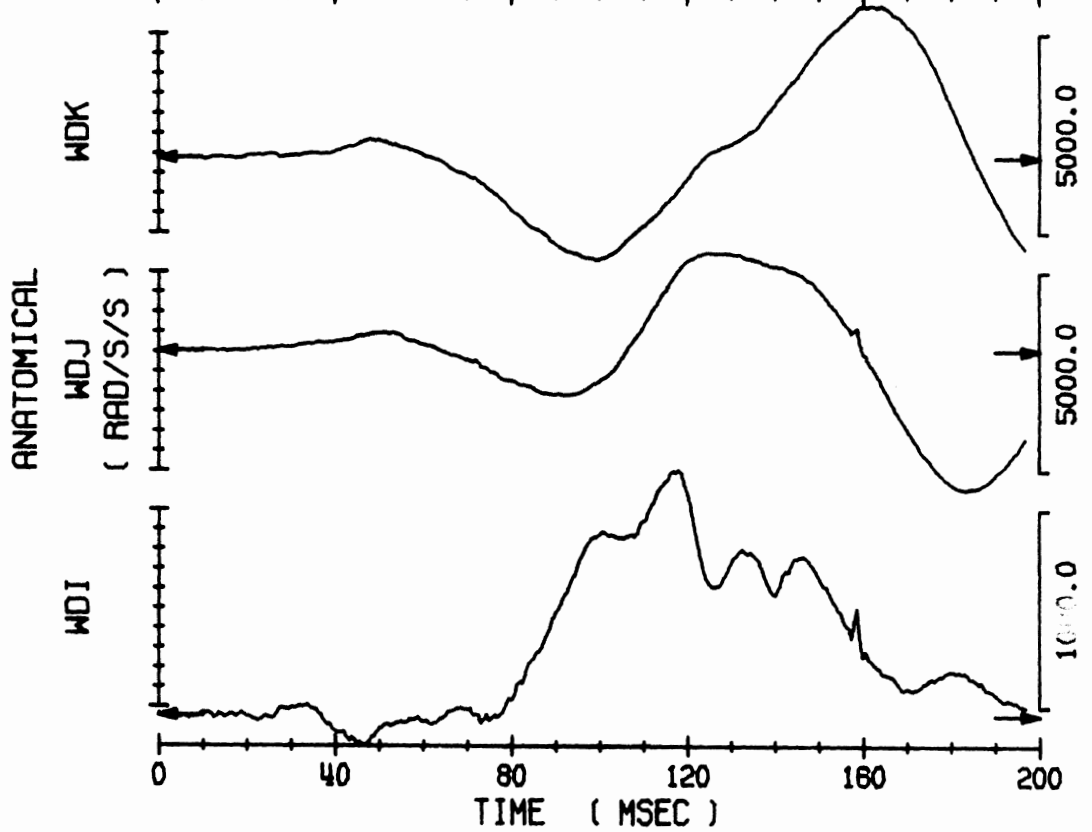
FILE: 276

A-907-1: DM9X-L

ANG VELOCITIES



ANG ACCELERATIONS



3-D ANGULAR MOTION

C-242

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: A-908
=====

SUBJECT: DM9X-L

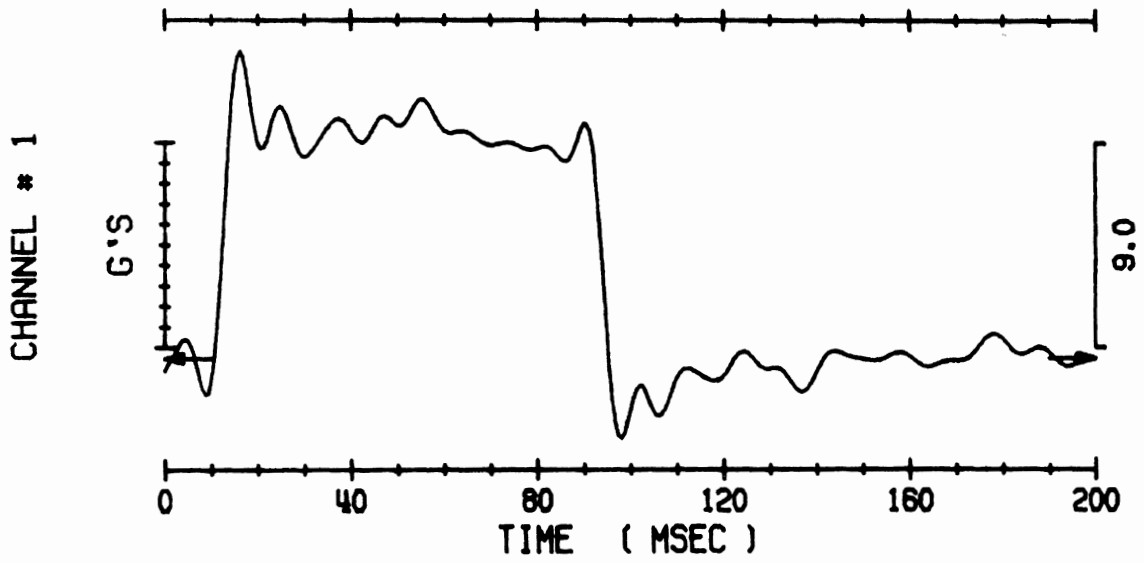
10.1 G-LEVEL
85. MS LONG
16.9 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1024. | 764. | 659. | 1525. | 0. | 0. |
| (LBS) @ (MS) | 86.1 | 85.5 | 95.5 | 87.4 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|-----------------|-------------------|-------|-------|-------|------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 21. | -21. | 3. | -5. | 1. | -4. | 9. |
| (G'S) @ | 71.1 | 73.9 | 122.7 | 109.2 | 63.0 | 82.3 | 112.1 |
| GSI= | 64 | | | | | | |
| EX. PELVIS ACC: | 0. | -18. | 4. | 0. | 0. | -7. | 11. |
| (G'S) @ | 0.0 | 93.9 | 125.8 | 0.0 | 0.0 | 67.7 | 94.7 |
| | | | | | | | |
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

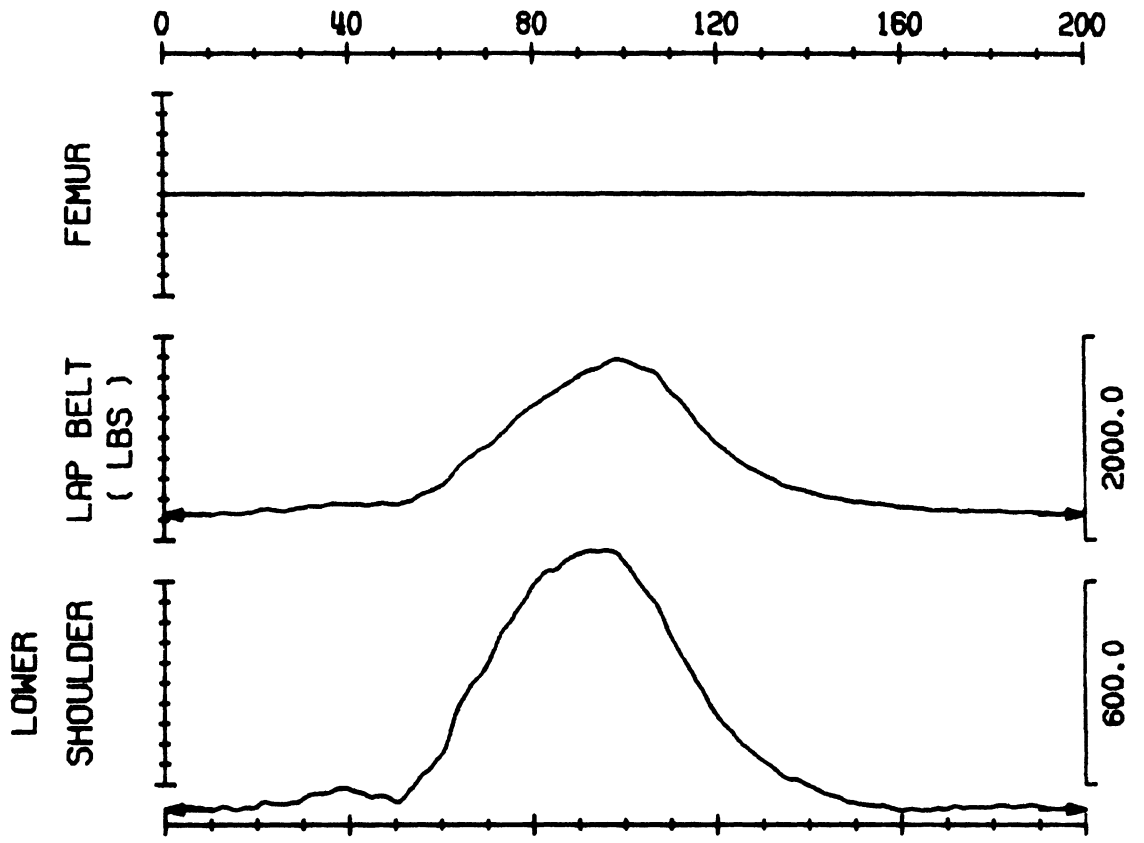
FILE: 291

A-908-2: DM9X-L

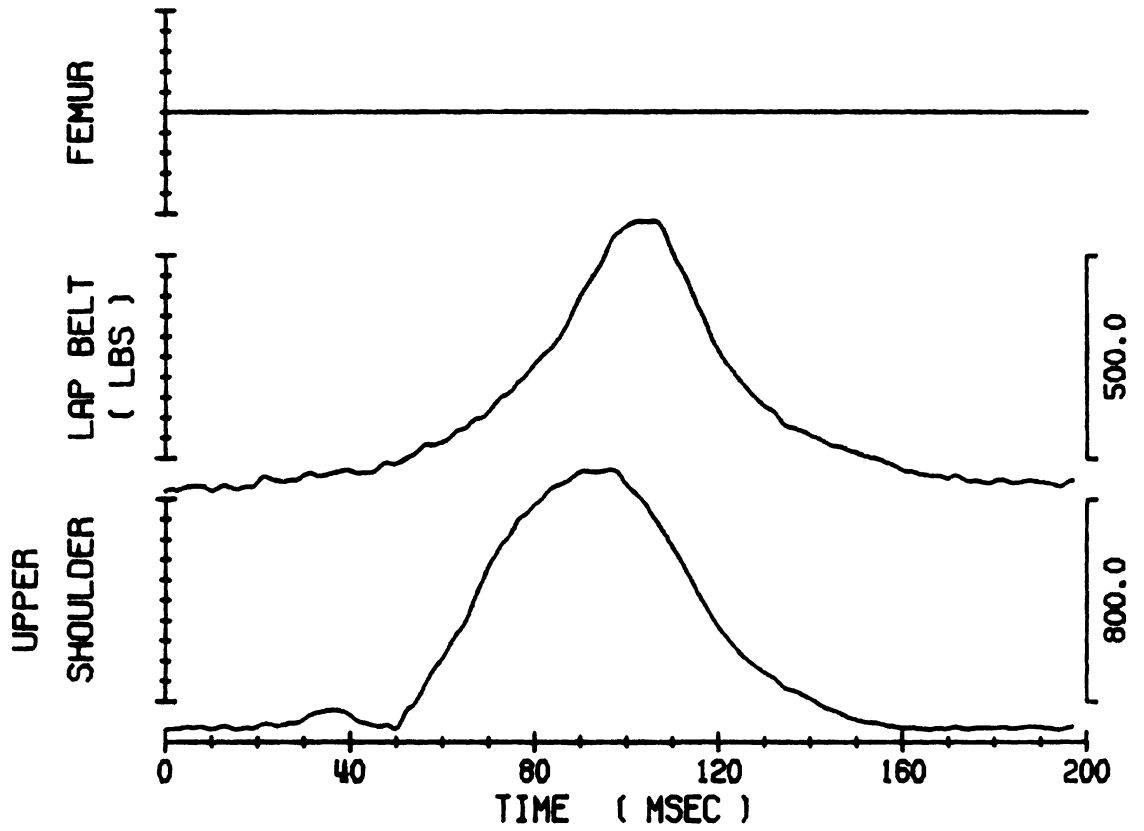


SLED DECELERATION

RIGHT SIDE



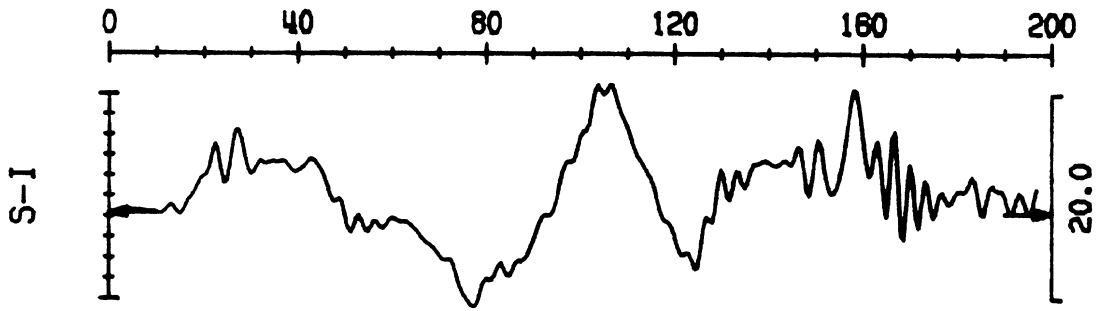
LEFT SIDE



MEASURED FORCES

PELVIS

EXTERNAL



L-R
(G'S)

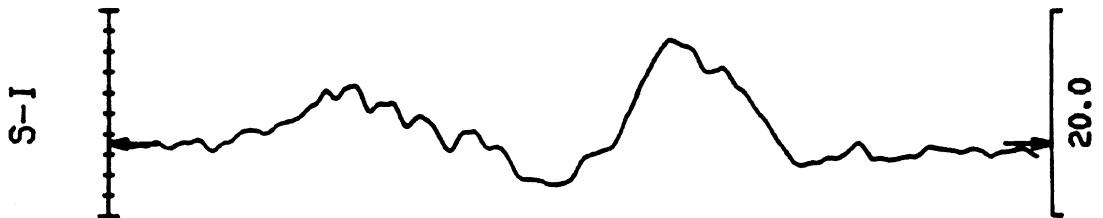


A-P

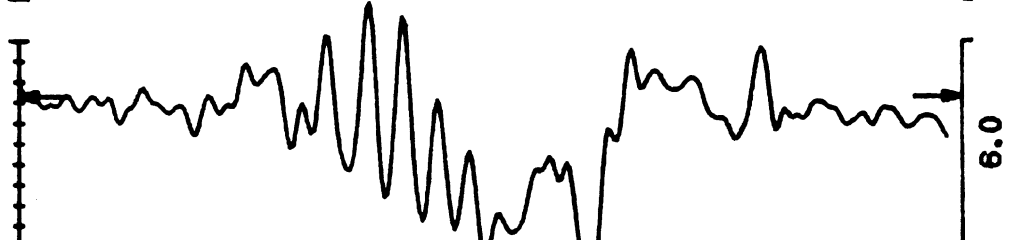


THORAX

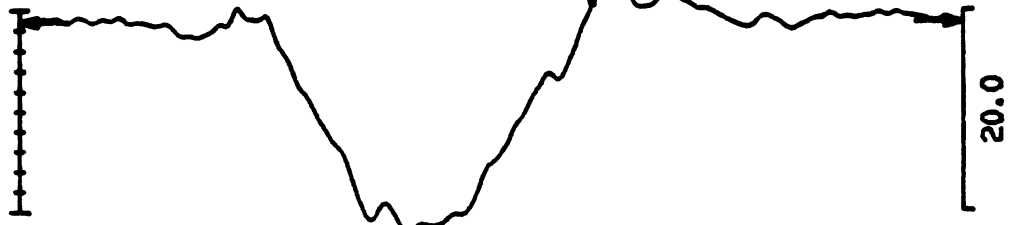
EXTERNAL



L-R
(G'S)



A-P

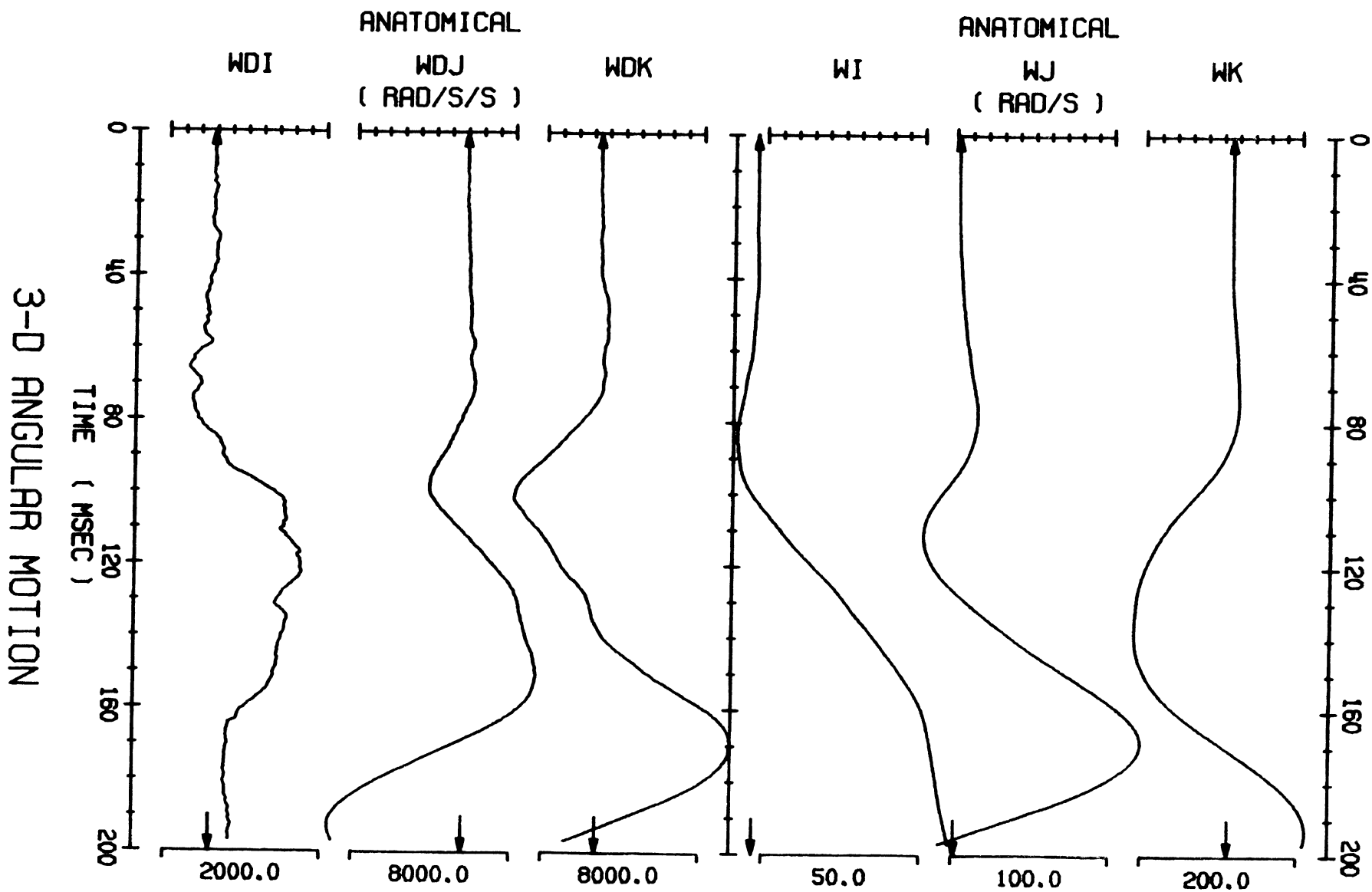


TIME (MSEC)

MEASURED ACCELERATIONS

ANG ACCELERATIONS

ANG VELOCITIES



FILE: 286

A-908-1: DM9X-L

C-247

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: A-909
=====

SUBJECT: DM9X-L

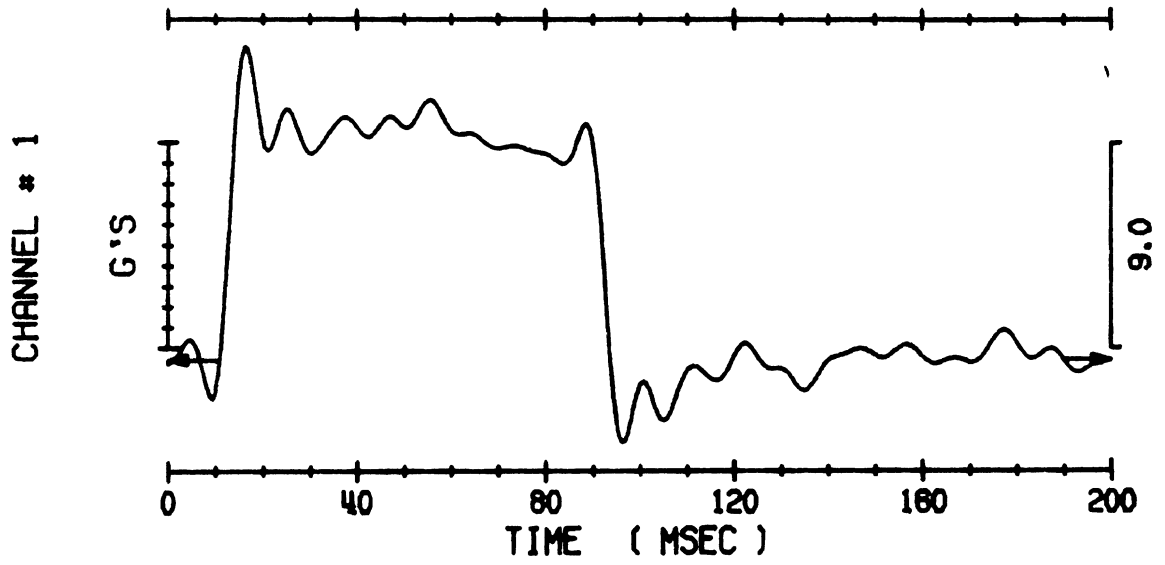
10.1 G-LEVEL
83. MS LONG
16.7 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FOR : | 999. | 724. | 466. | 1395. | 0. | 0. |
| (LBS) @ (MS) | 85.8 | 83.3 | 92.1 | 85.8 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 22. | -21. | 3. | -3. | 2. | -2. | 7. |
| (G'S) @ | 70.9 | 73.1 | 118.5 | 136.0 | 128.2 | 79.3 | 109.7 |
| GSI= | 64 | | | | | | |
| EX PELVIS ACC: | 0. | -17. | 4. | 0. | 0. | -8. | 8. |
| (G'S) @ | 0.0 | 90.3 | 122.9 | 0.0 | 0.0 | 67.8 | 92.1 |
| | | | | | | | |
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

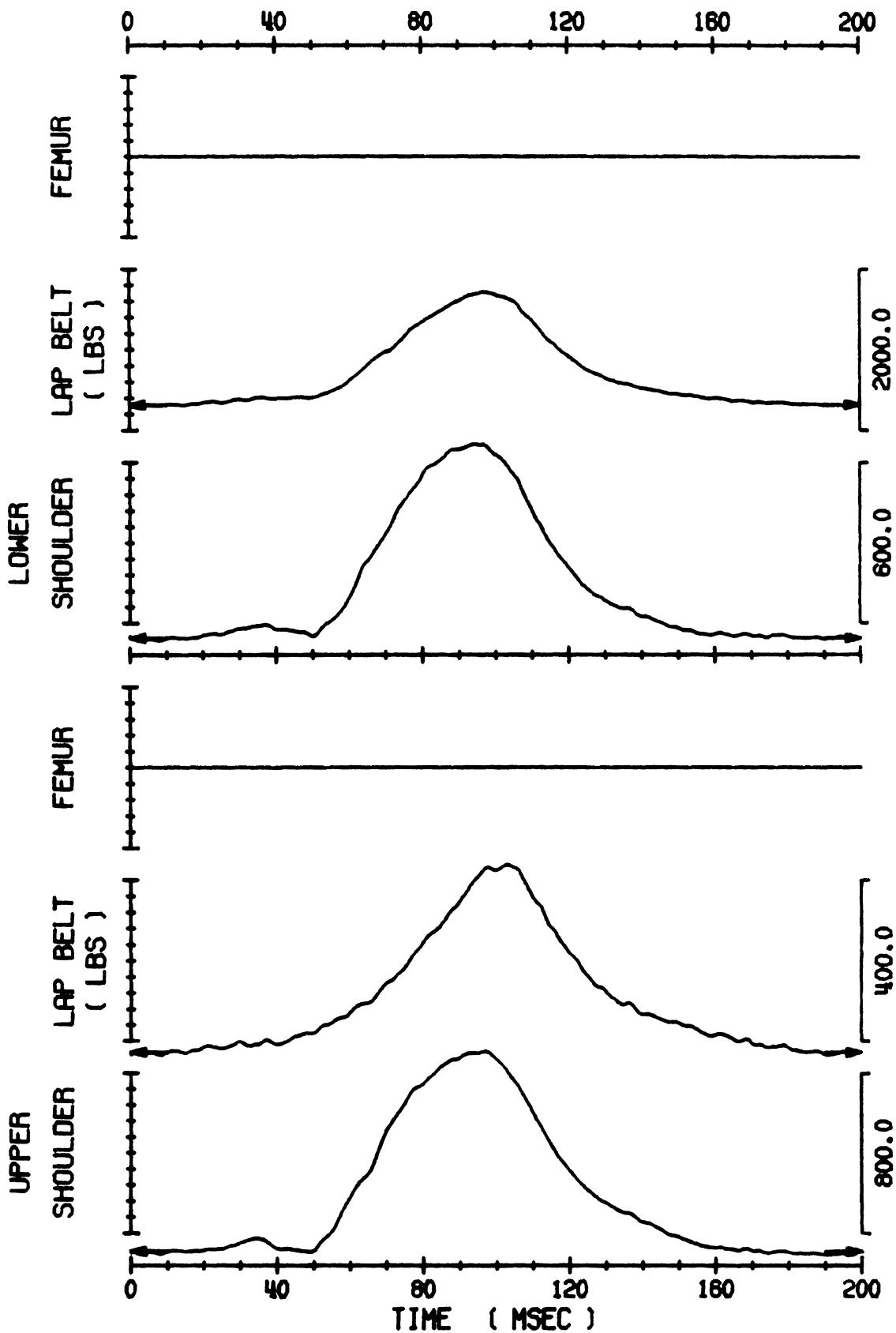
FILE: 301

A-909-2: DM9X-L



SLED DECELERATION

RIGHT SIDE



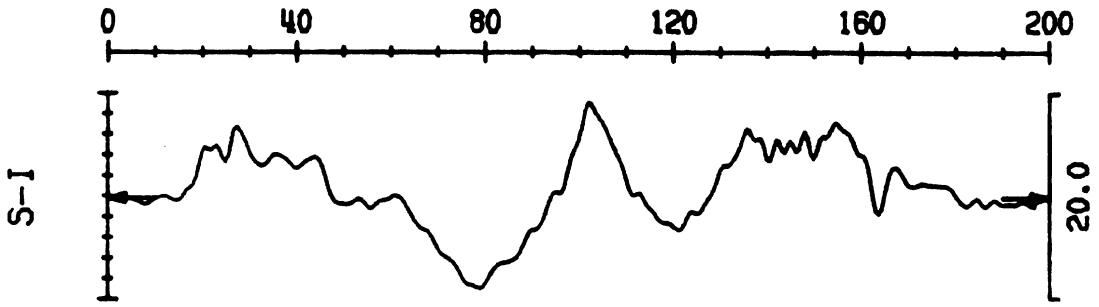
MEASURED FORCES

FILE: 302

A-909-2: DM9X-L

PELVIS

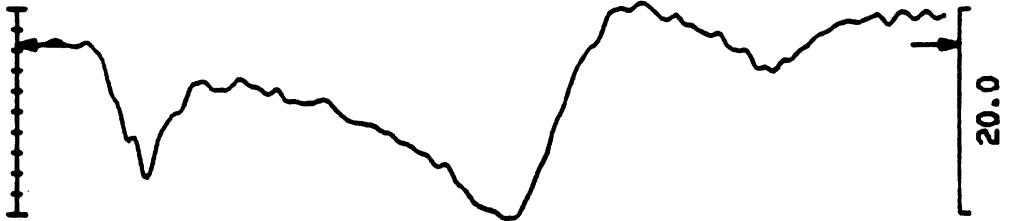
EXTERNAL



L-R
(G'S)



A-P



THORAX

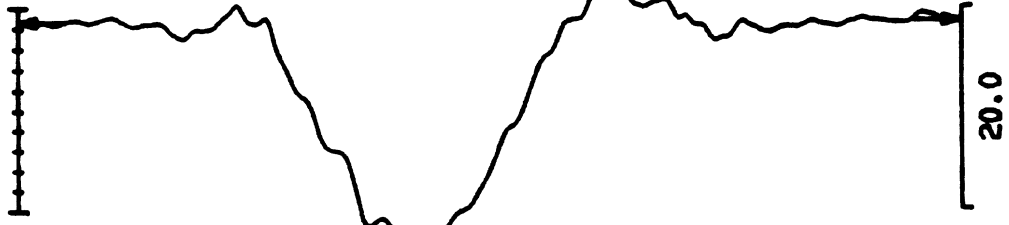
EXTERNAL



L-R
(G'S)



A-P



TIME (MSEC)

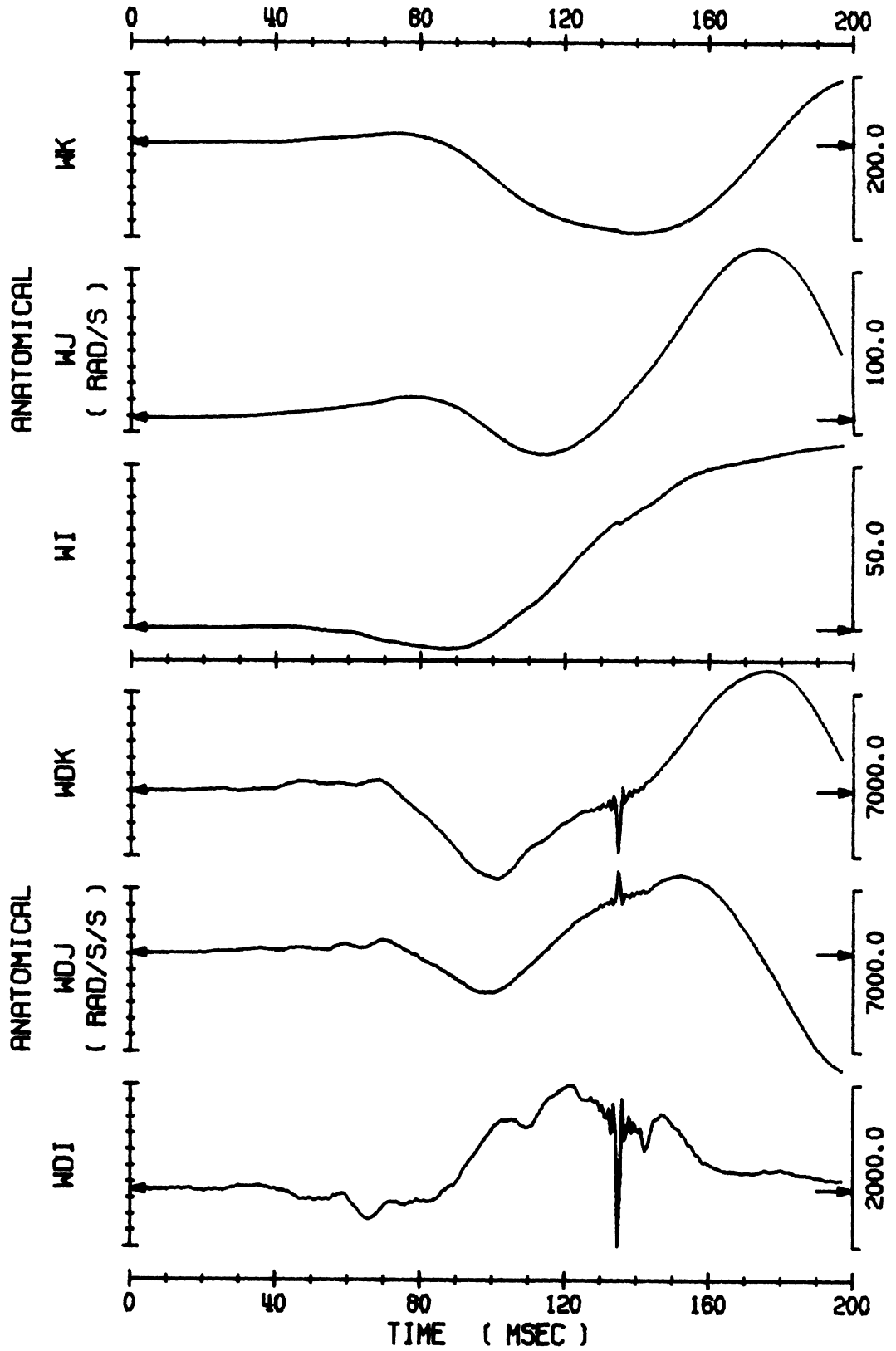
MEASURED ACCELERATIONS

FILE: 297

A-909-1: DM9X-L

ANG VELOCITIES

ANG ACCELERATIONS



3-D ANGULAR MOTION

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: A-910
=====

SUBJECT: DM9X-L

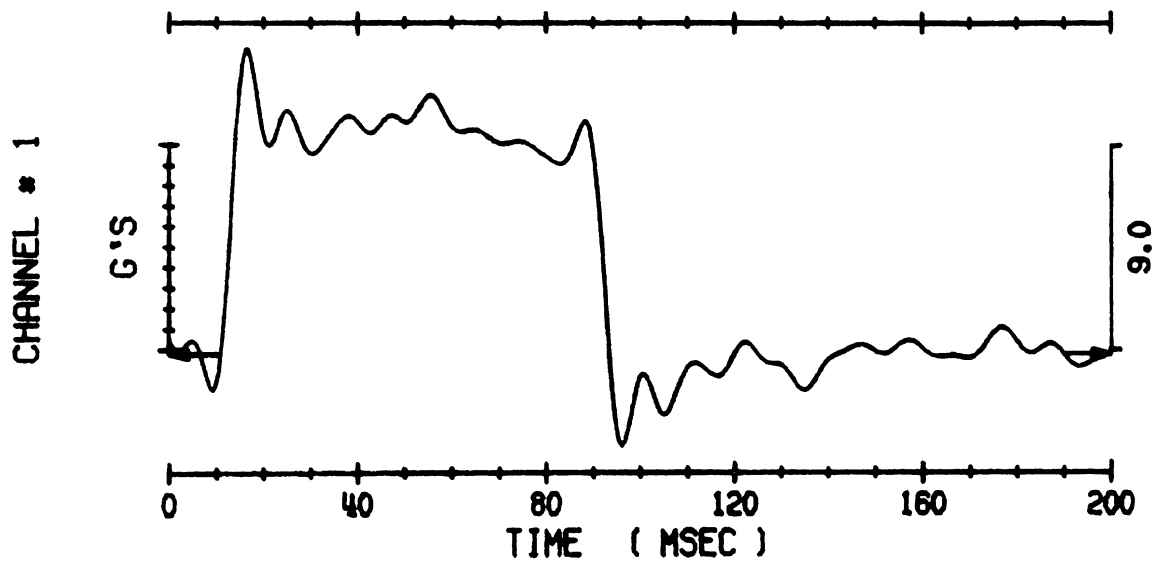
10.0 G-LEVEL
82. MS LONG
16.3 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 989. | 715. | 589. | 1443. | 0. | 0. |
| (LBS) @ (MS) | 85.8 | 82.1 | 91.4 | 87.1 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 22. | -21. | 3. | -3. | 3. | -2. | 8. |
| (G'S) @ | 70.2 | 73.9 | 121.9 | 89.2 | 71.0 | 80.6 | 108.4 |
| GSI= | 64 | | | | | | |
| EX PELVIS ACC: | 0. | -17. | 4. | 0. | 0. | -8. | 7. |
| (G'S) @ | 0.0 | 90.5 | 126.7 | 0.0 | 0.0 | 66.7 | 92.1 |
| | | | | | | | |
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

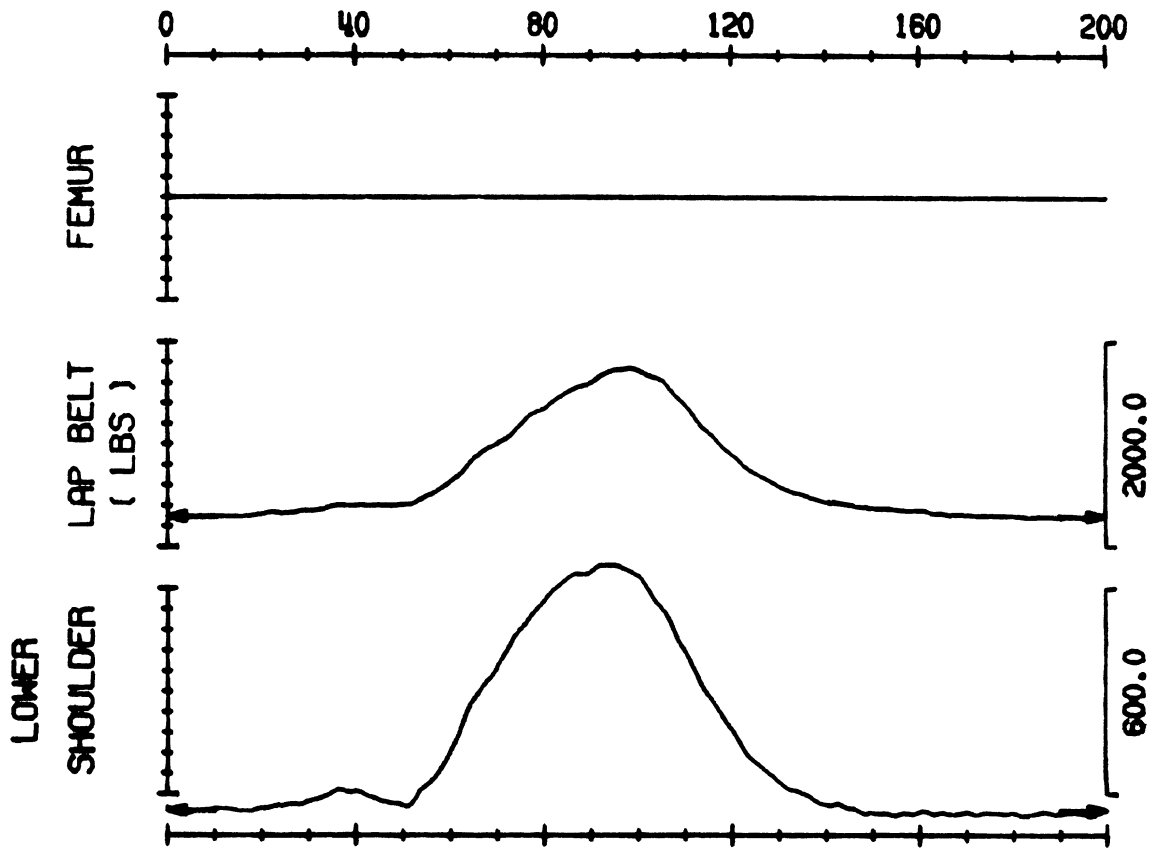
FILE: 312

A-910-2: DM9X-L

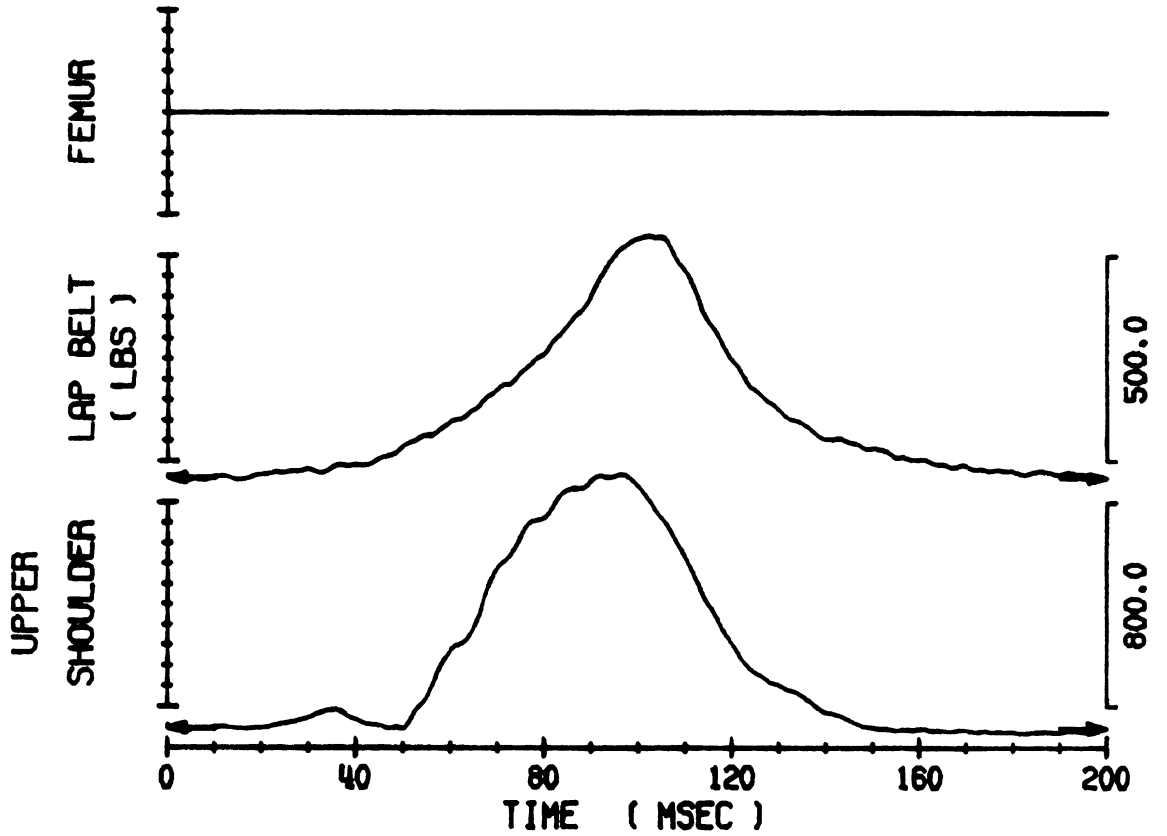


SLED DECELERATION

RIGHT SIDE



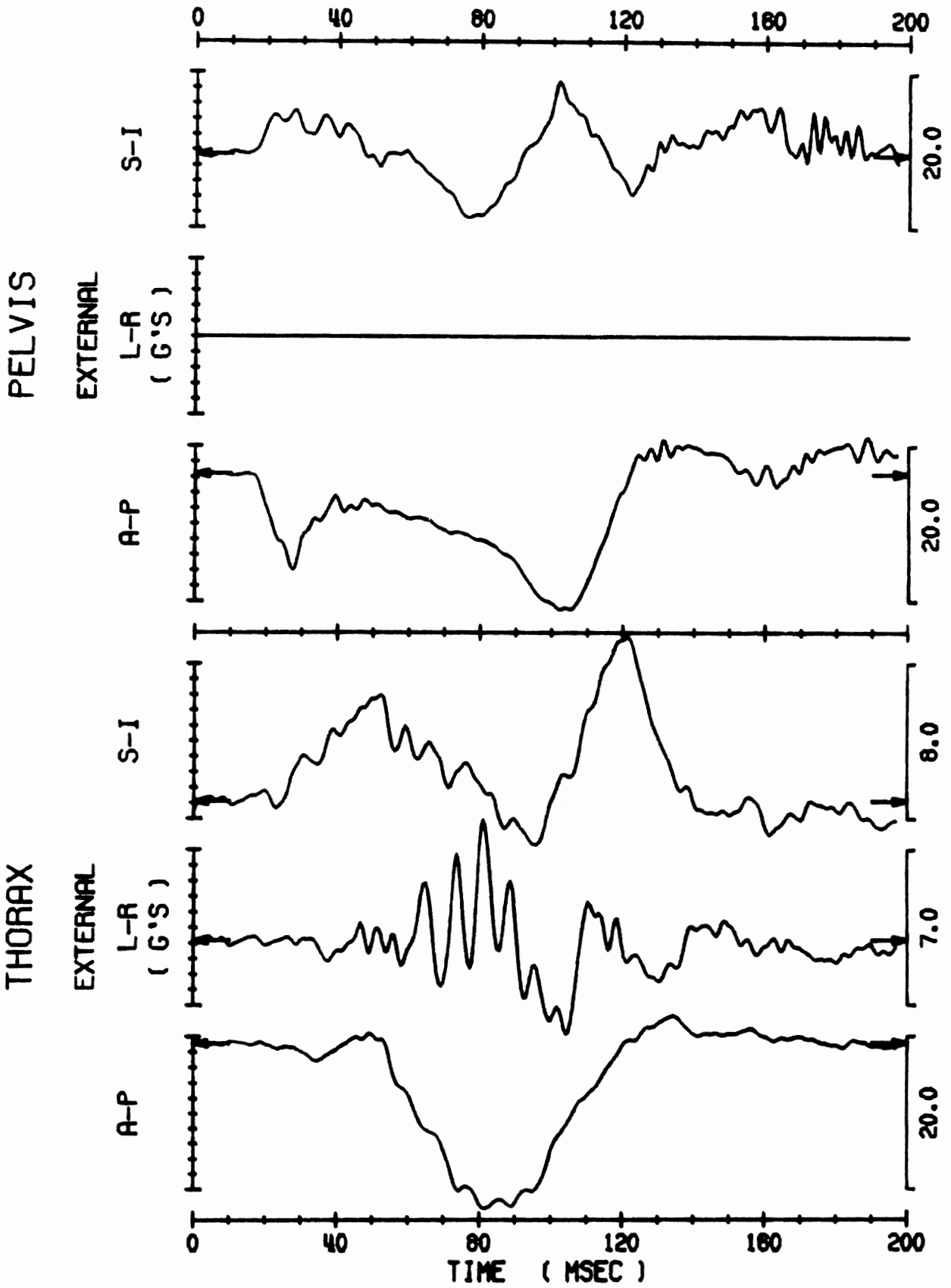
LEFT SIDE



MEASURED FORCES

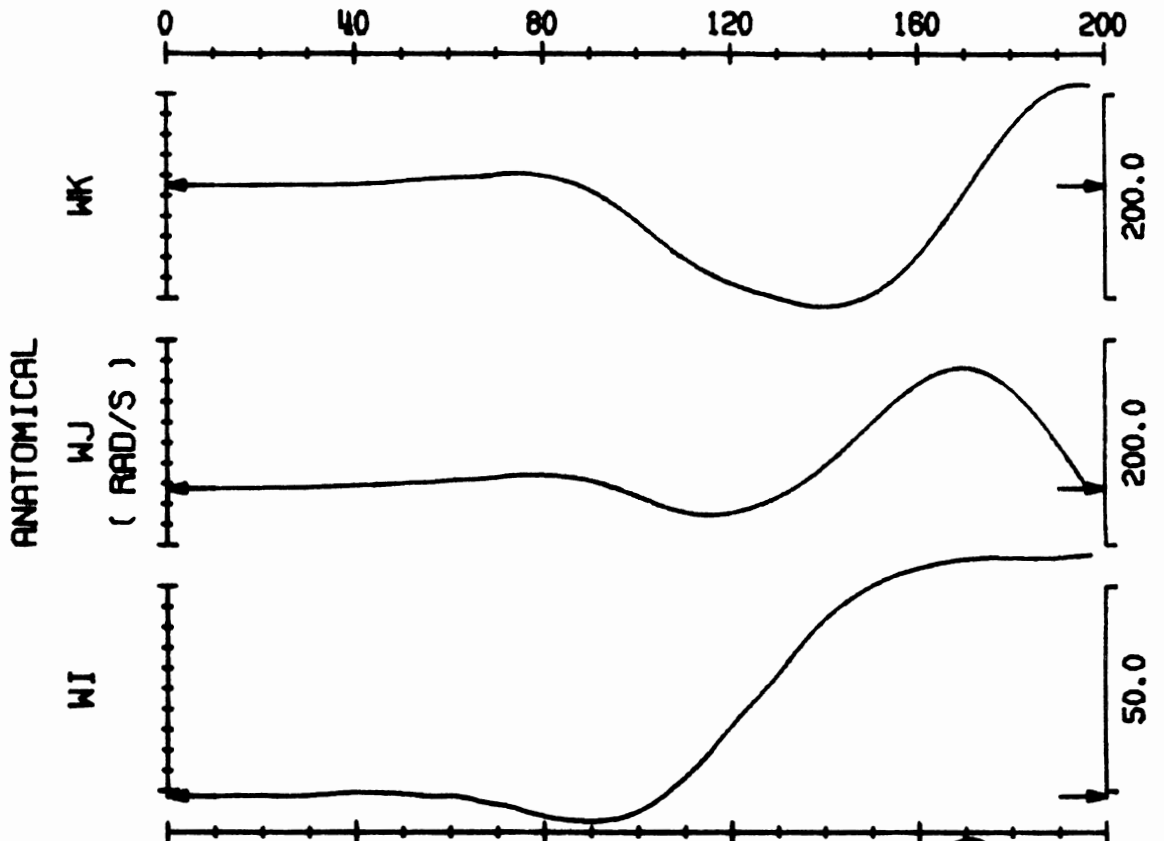
FILE: 313

A-910-2: DM9X-L

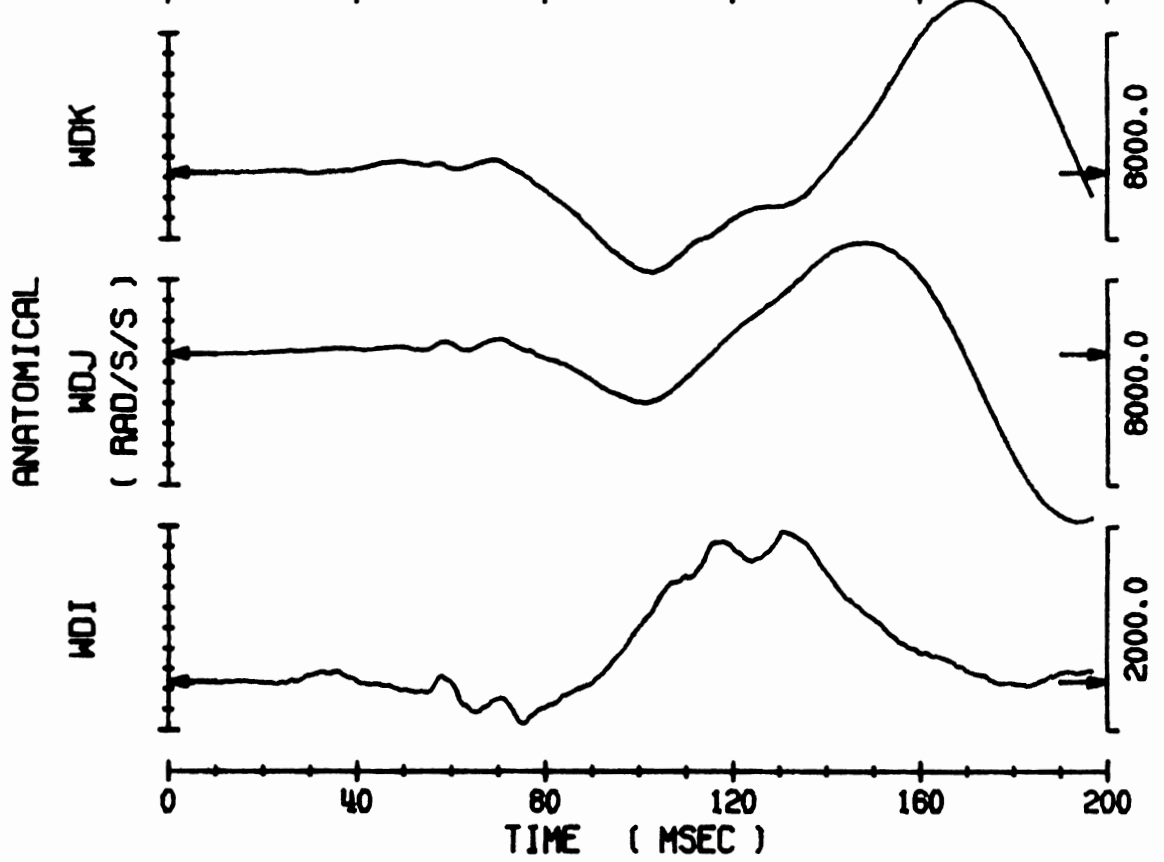


MEASURED ACCELERATIONS

ANG VELOCITIES



ANG ACCELERATIONS



3-D ANGULAR MOTION

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: A-911
=====

SUBJECT: D49X-M

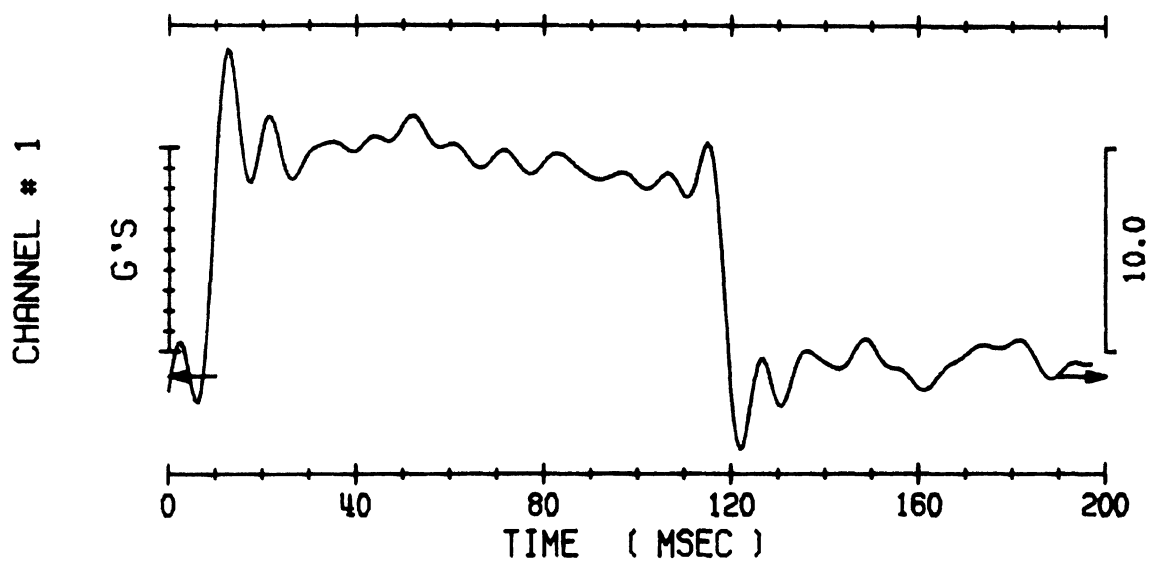
11.1 G-LEVEL
113. MS LONG
26.9 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1064. | 774. | 728. | 1747. | 0. | 0. |
| (LBS) @ (MS) | 80.2 | 85.9 | 96.4 | 102.1 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 23. | -22. | 0. | -3. | 5. | -6. | 14. |
| (G'S) @ | 75.2 | 74.5 | 167.0 | 141.9 | 126.1 | 146.3 | 117.5 |
| GSI= | 92 | | | | | | |
| EX PELVIS ACC: | 0. | -31. | 2. | 0. | 0. | -8. | 12. |
| (G'S) @ | 0.0 | 107.4 | 130.9 | 0.0 | 0.0 | 66.1 | 100.3 |
| | | | | | | | |
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

FILE: 323

A-911-2: DM9X-M



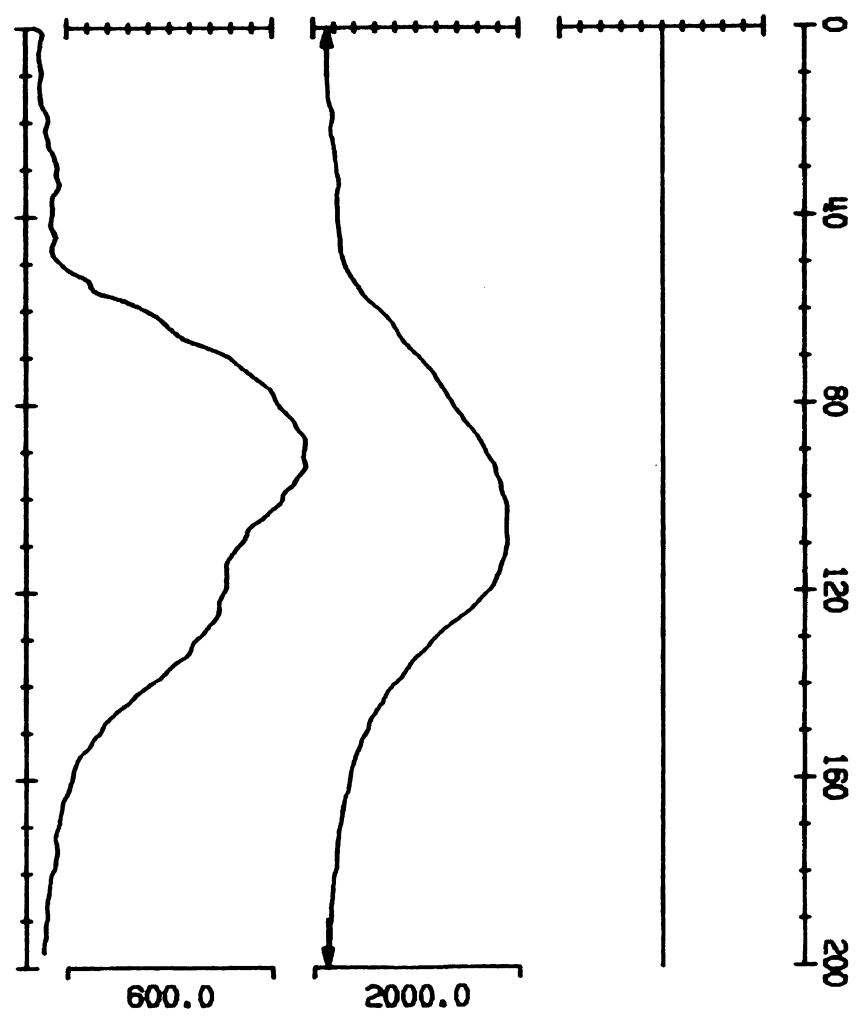
SLED DECELERATION

FILE: 325

A-911-2: DM9X-M

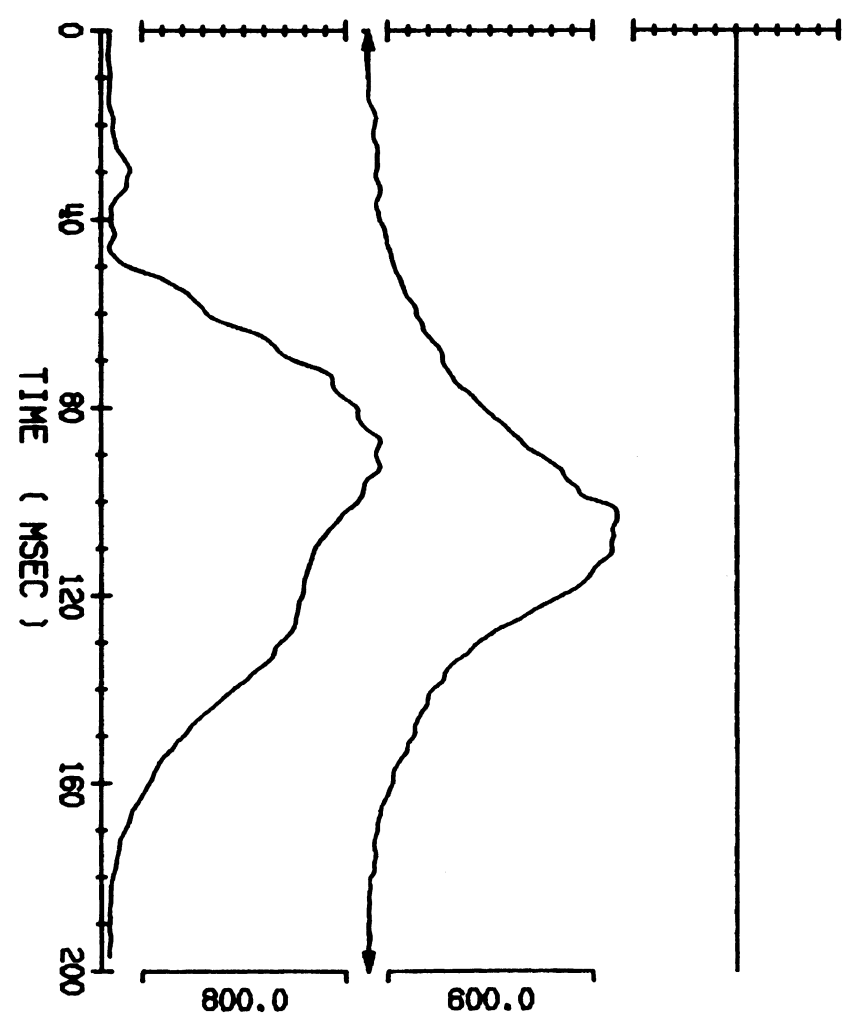
RIGHT SIDE

LOWER SHOULDER LAP BELT (LBS) FEMUR



LEFT SIDE

UPPER SHOULDER LAP BELT (LBS) FEMUR



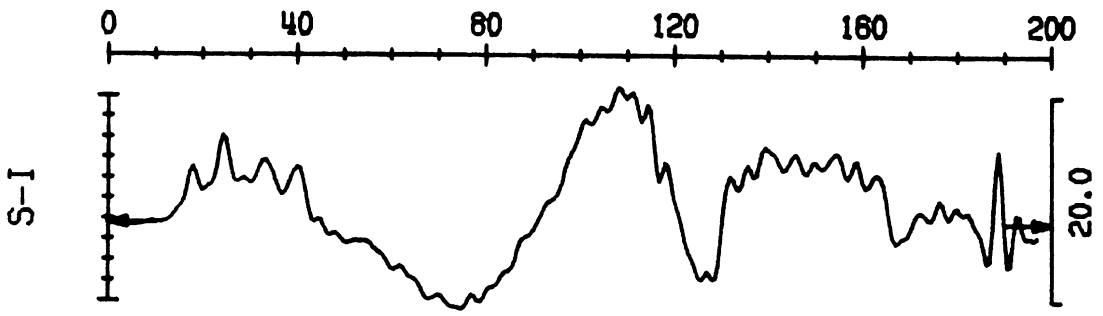
MEASURED FORCES

FILE: 324

A-911-2: DM9X-M

PELVIS

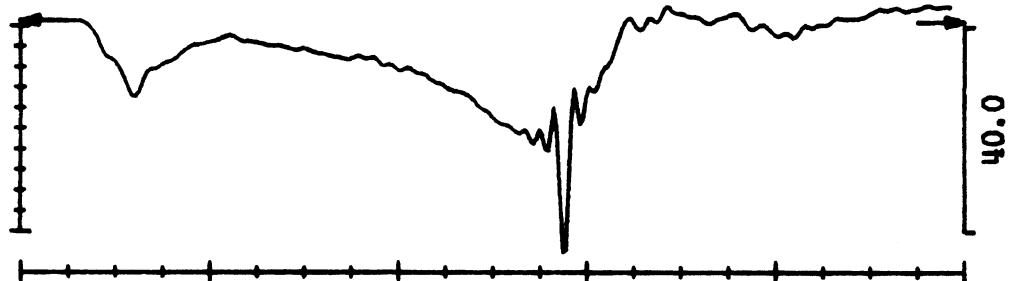
EXTERNAL



L-R
(G'S)

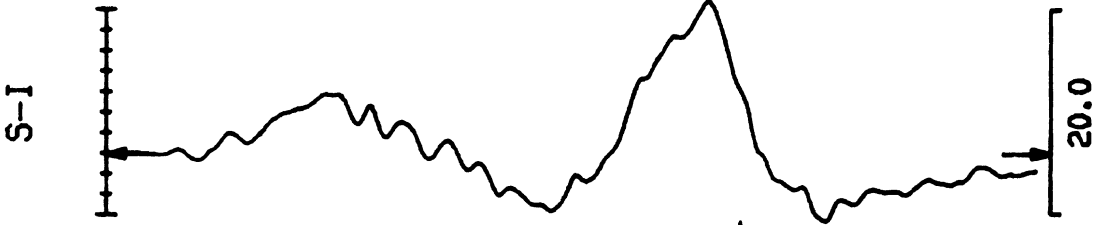


A-P



THORAX

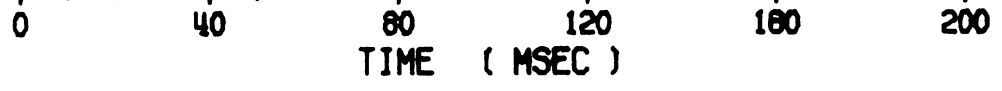
EXTERNAL



L-R
(G'S)

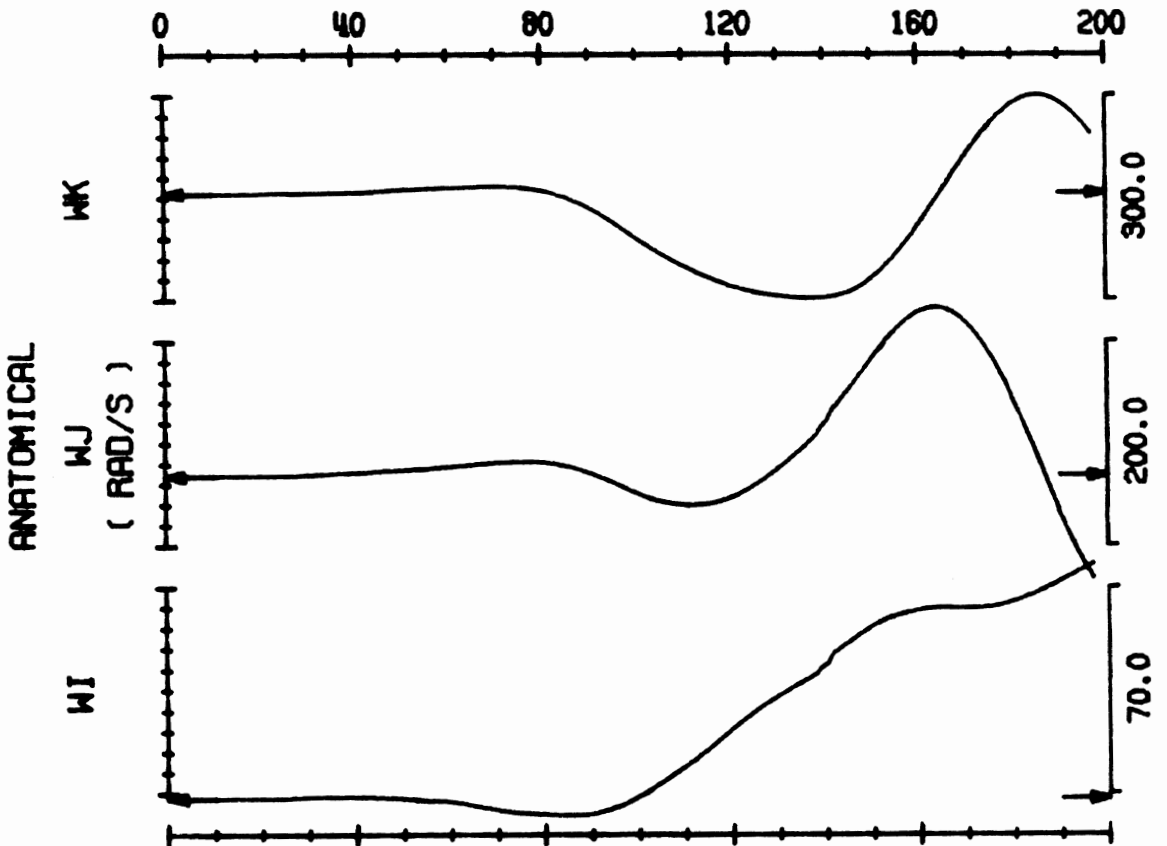


A-P

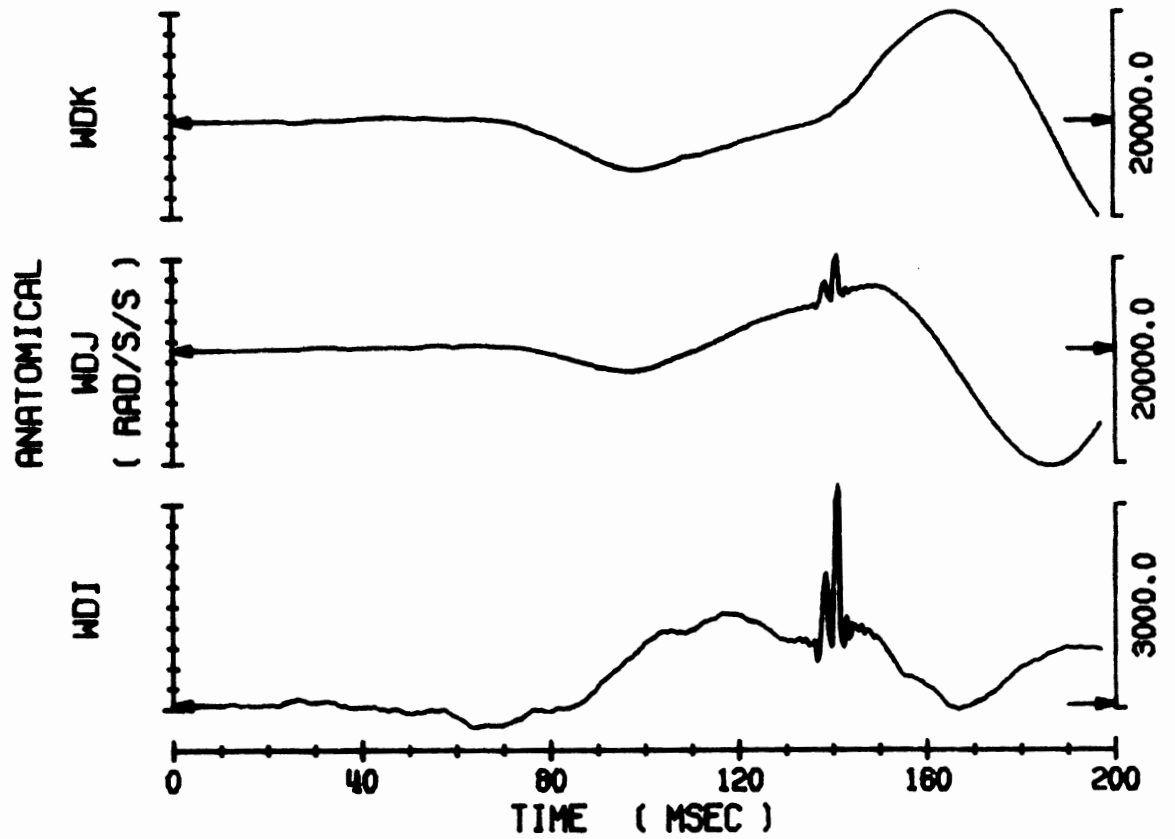


MEASURED ACCELERATIONS

ANG VELOCITIES



ANG ACCELERATIONS



3-D ANGULAR MOTION

C-266

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: A-912
=====

SUBJECT: DM9X-M

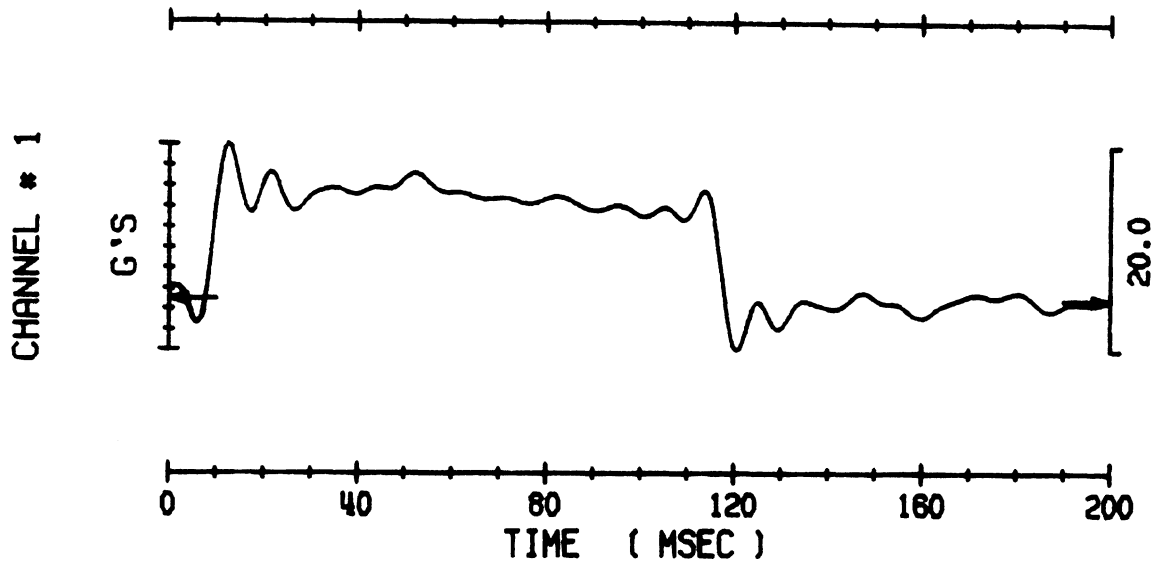
10.3 G-LEVEL
110. MS LONG
22.5 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1086. | 764. | 767. | 1573. | 0. | 0. |
| (LBS) @ (MS) | 77.9 | 81.1 | 96.7 | 91.7 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 25. | -24. | 1. | -8. | 6. | -5. | 16. |
| (G'S) @ | 69.2 | 71.3 | 165.4 | 121.4 | 114.9 | 141.3 | 111.3 |
| GSI= | 111 | | | | | | |
| EX PELVIS ACC: | 0. | -22. | 3. | 0. | 0. | -9. | 13. |
| (G'S) @ | 0.0 | 97.3 | 181.9 | 0.0 | 0.0 | 65.1 | 97.2 |
| | | | | | | | |
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

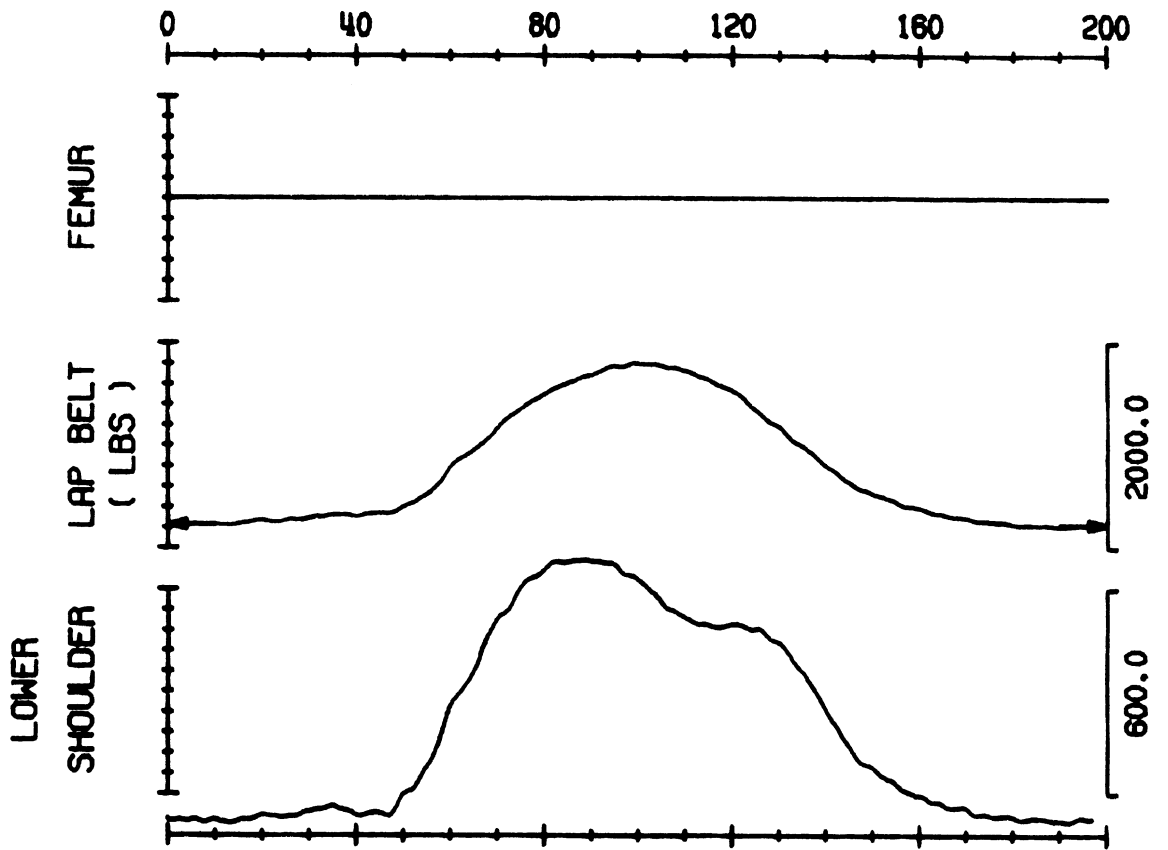
FILE: 333

A-912-2: DM9X-M

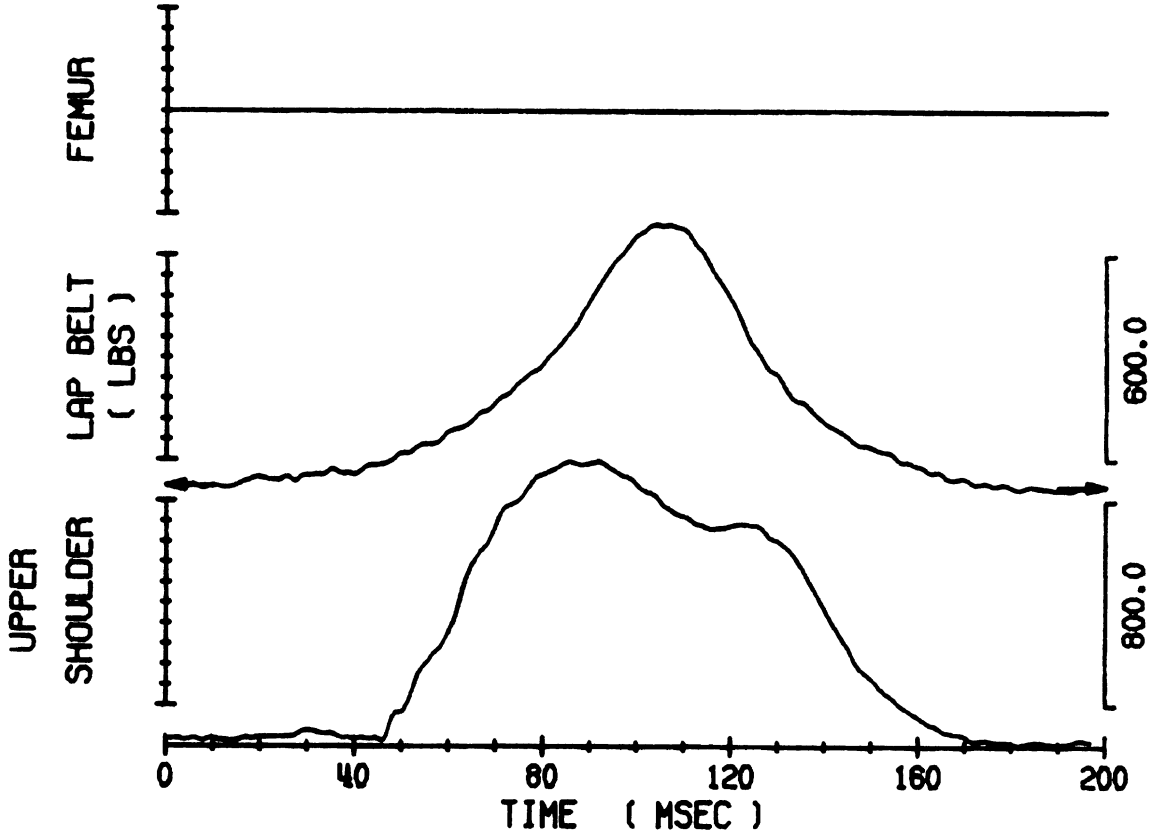


SLED DECELERATION

RIGHT SIDE



LEFT SIDE



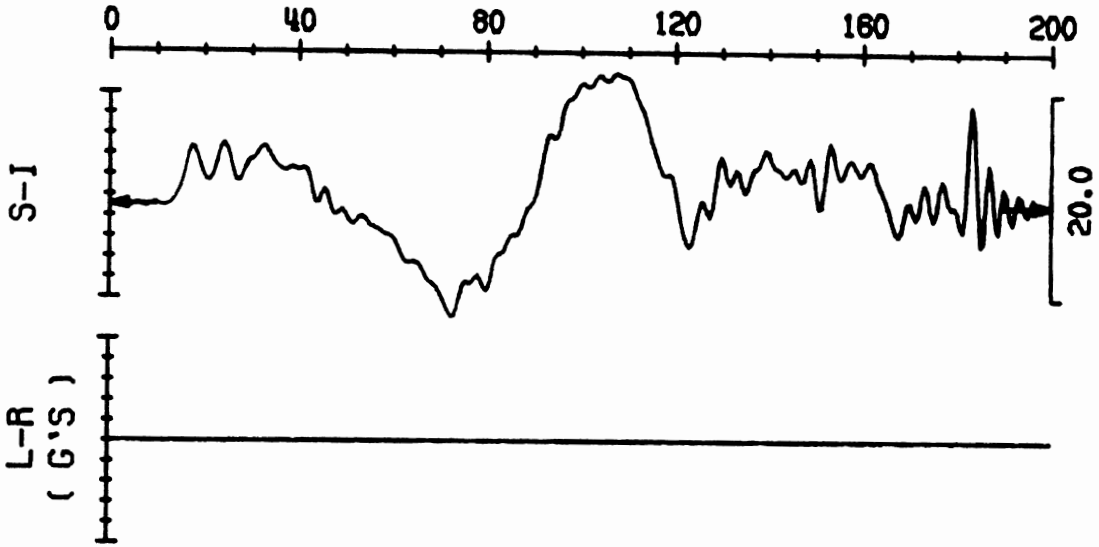
MEASURED FORCES

FILE: 334

A-912-2: DM9X-M

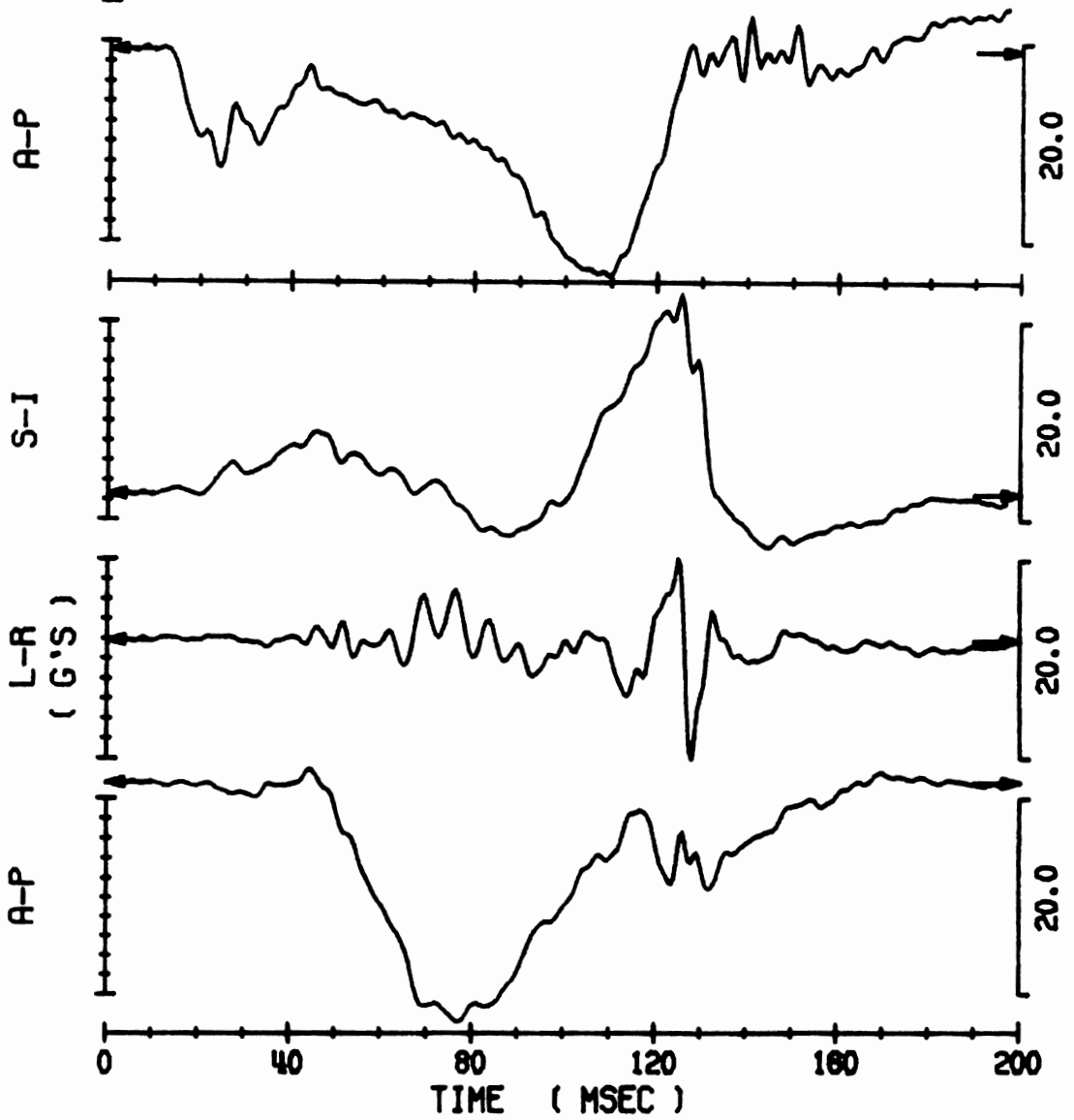
PELVIS

EXTERNAL



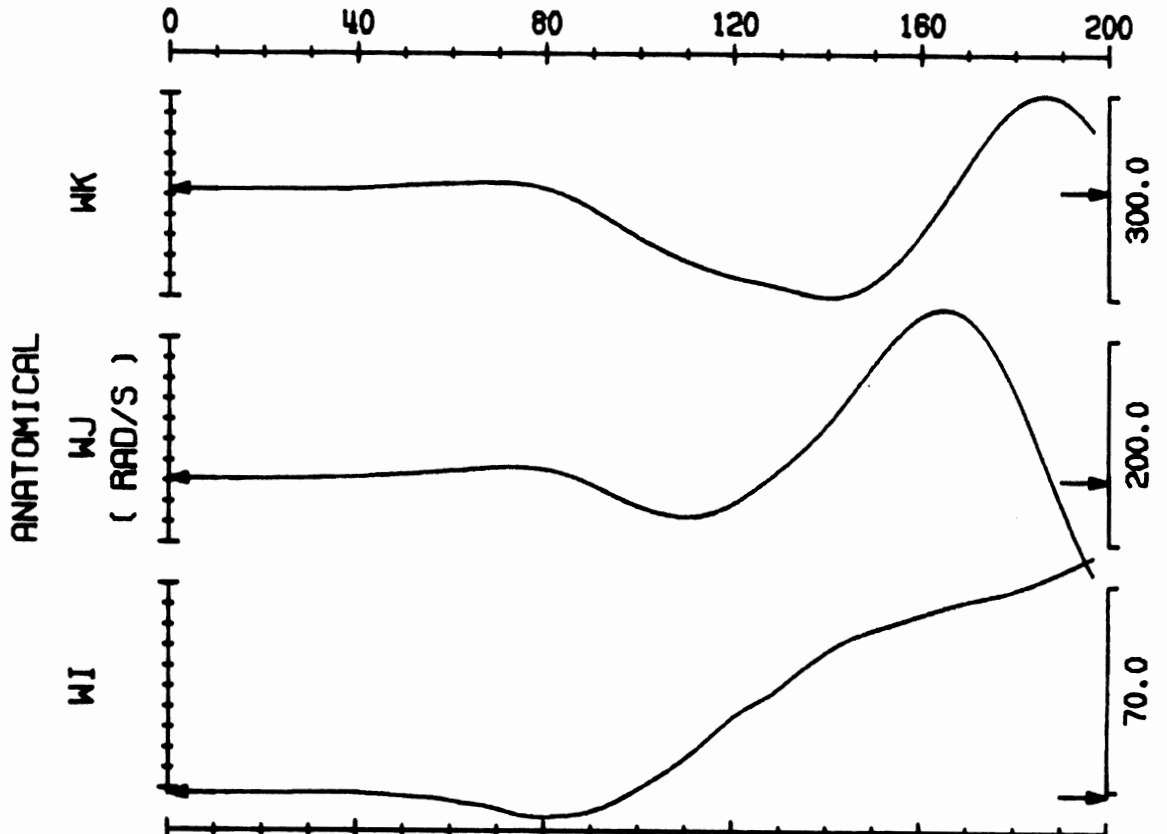
THORAX

EXTERNAL

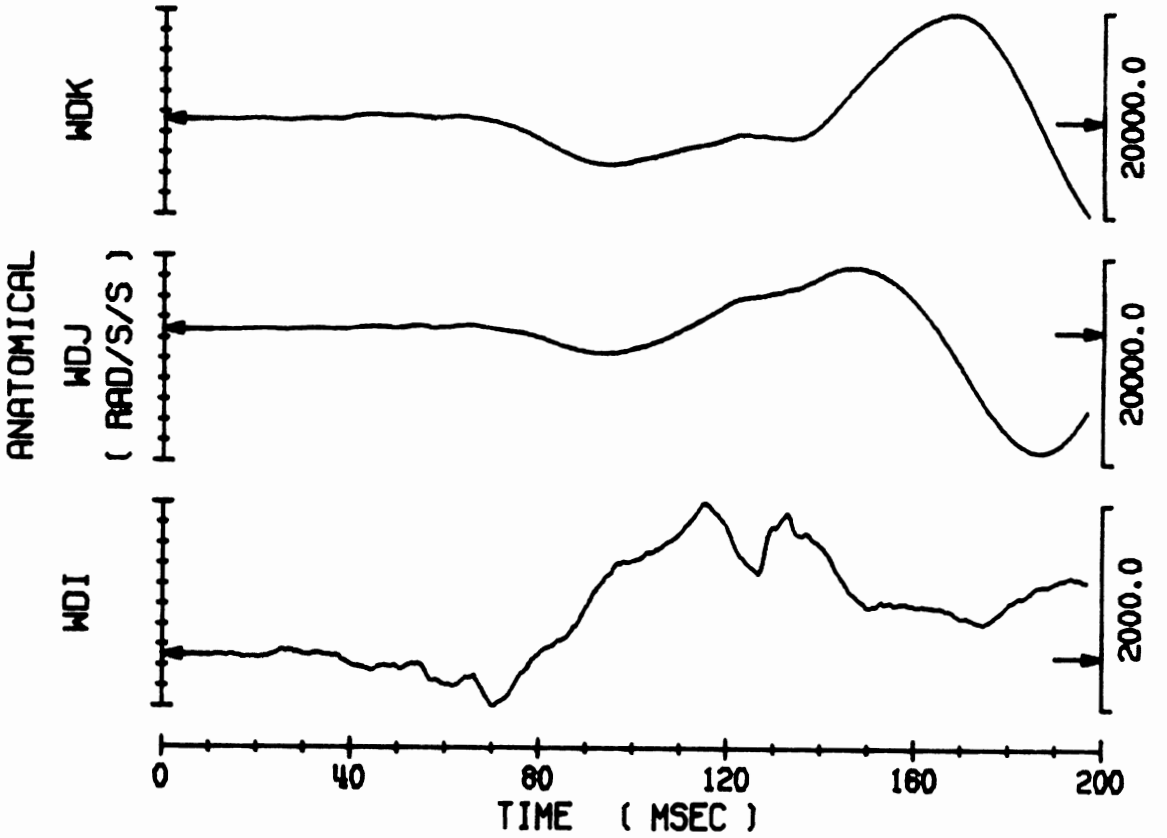


MEASURED ACCELERATIONS

ANG VELOCITIES



ANG ACCELERATIONS



3-D ANGULAR MOTION

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: A-913

=====

=====

=====

SUBJECT: DM9X-H

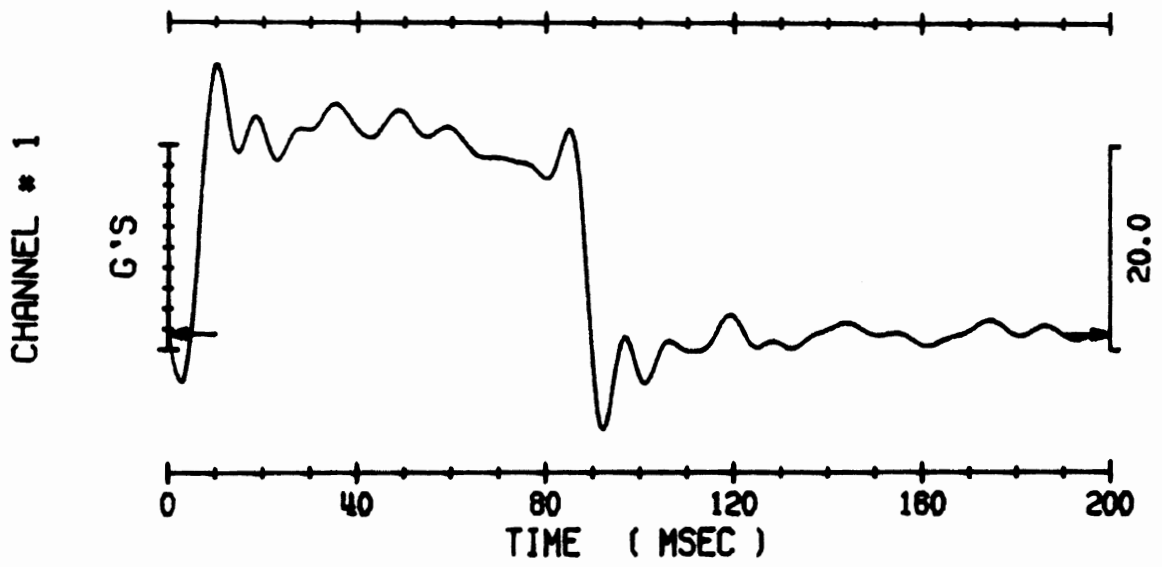
20.1 G-LEVEL
85. MS LONG
32.8 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1997. | 1434. | 1481. | 3336. | 0. | 0. |
| (LBS) @ (MS) | 82.4 | 83.1 | 77.4 | 78.7 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|------|-------|------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ (MS) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EX THORAX ACC: | 40. | -38. | 3. | -15. | 10. | -11. | 19. |
| (G'S) @ | 56.8 | 59.4 | 157.2 | 98.9 | 91.8 | 115.6 | 91.9 |
| GSI= | 341 | | | | | | |
| EX PELVIS ACC: | 0. | -49. | 11. | 0. | 0. | -18. | 24. |
| (G'S) @ | 0.0 | 76.3 | 165.6 | 0.0 | 0.0 | 50.5 | 74.3 |
| | | | | | | | |
| HEAD ANG ACC : | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (RAD/S/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD ANG VEL : | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (RAD/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| EULER ANGLES : | | | 0.0 | | 0.0 | | 0.0 |
| (DEGREES) @ | | | 0.0 | | 0.0 | | 0.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (G'S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. HIC= | 0 | | | | | | |
| HEAD C.G. VEL: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| (IN/S) @ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| HEAD C.G. DIS: | | | 0.0 | | 0.0 | | 0.0 |
| (IN) @ | | | 0.0 | | 0.0 | | 0.0 |

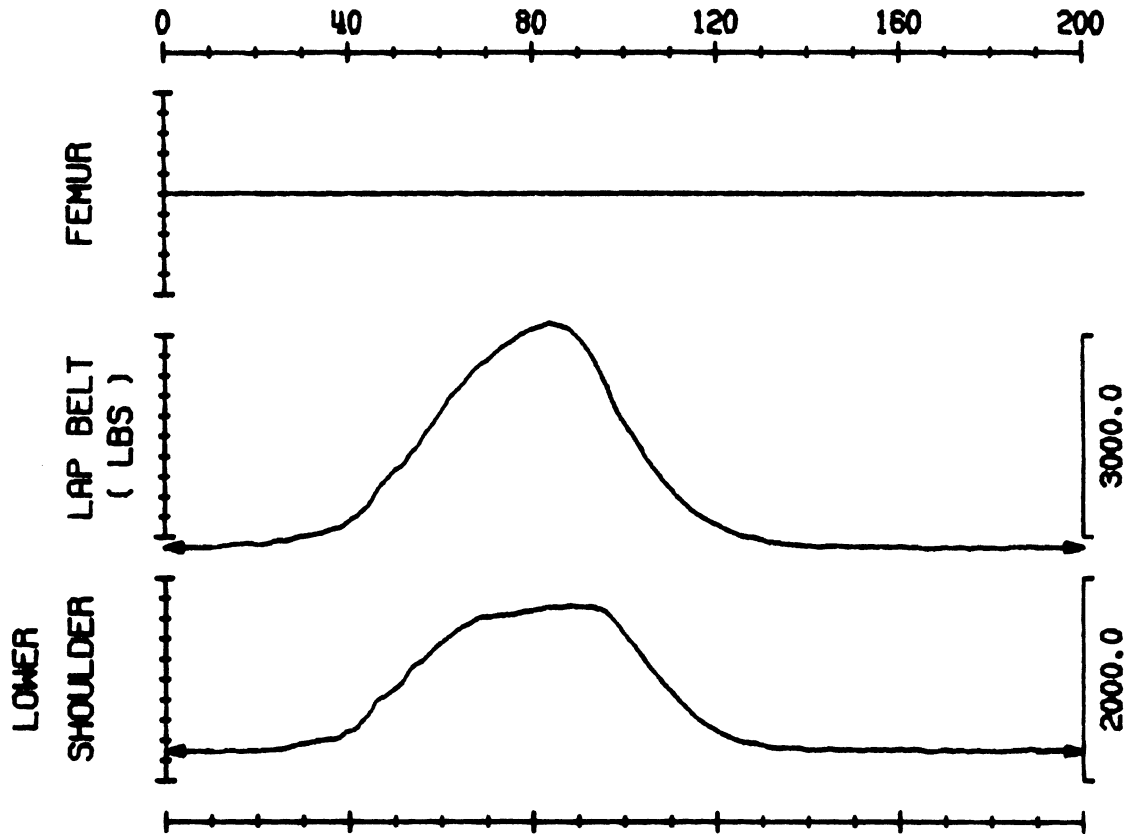
FILE: 344

A-913-2: DM9X-H

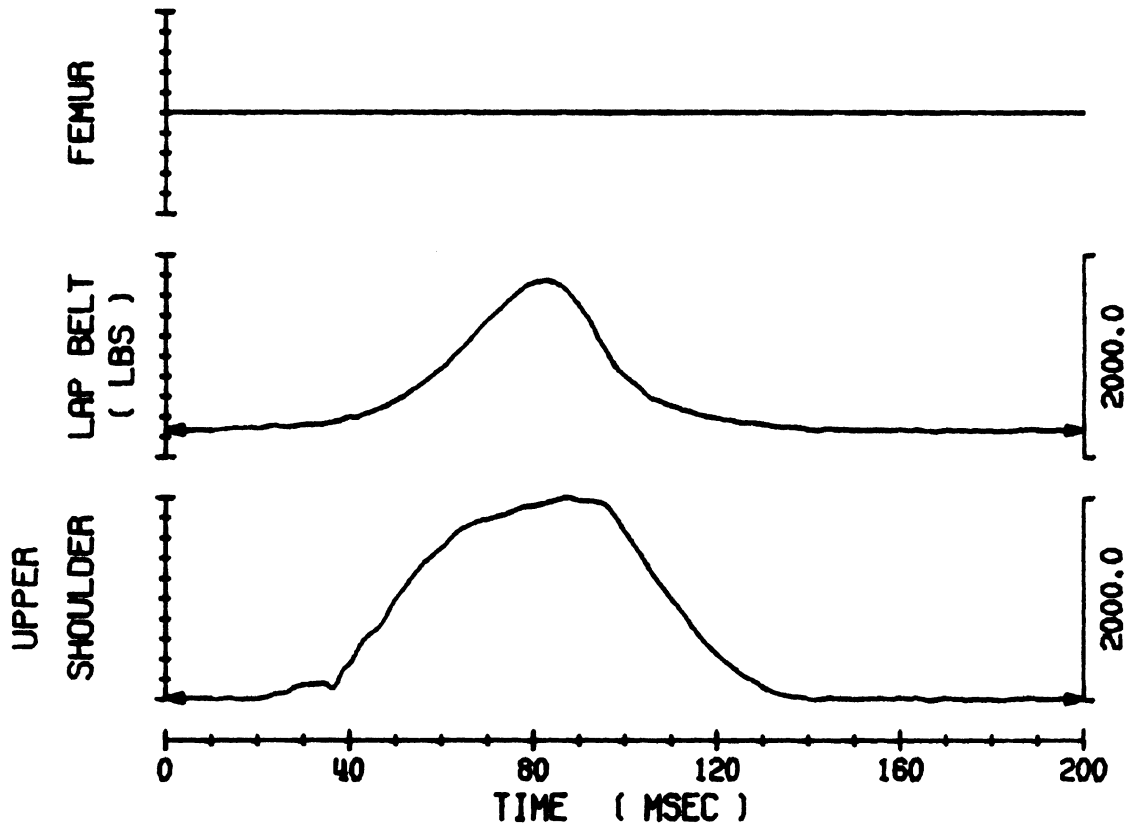


SLED DECELERATION

RIGHT SIDE



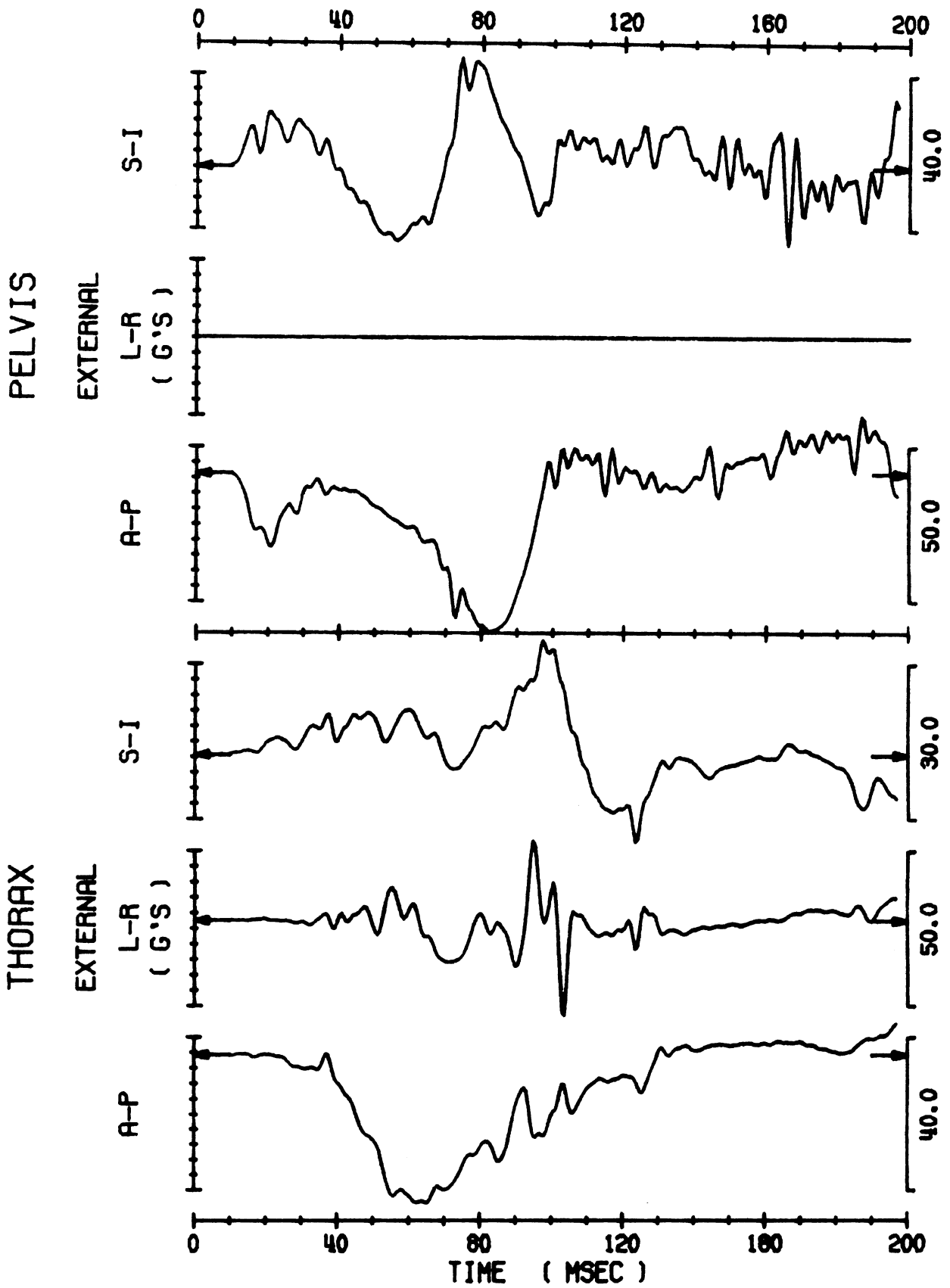
LEFT SIDE



MEASURED FORCES

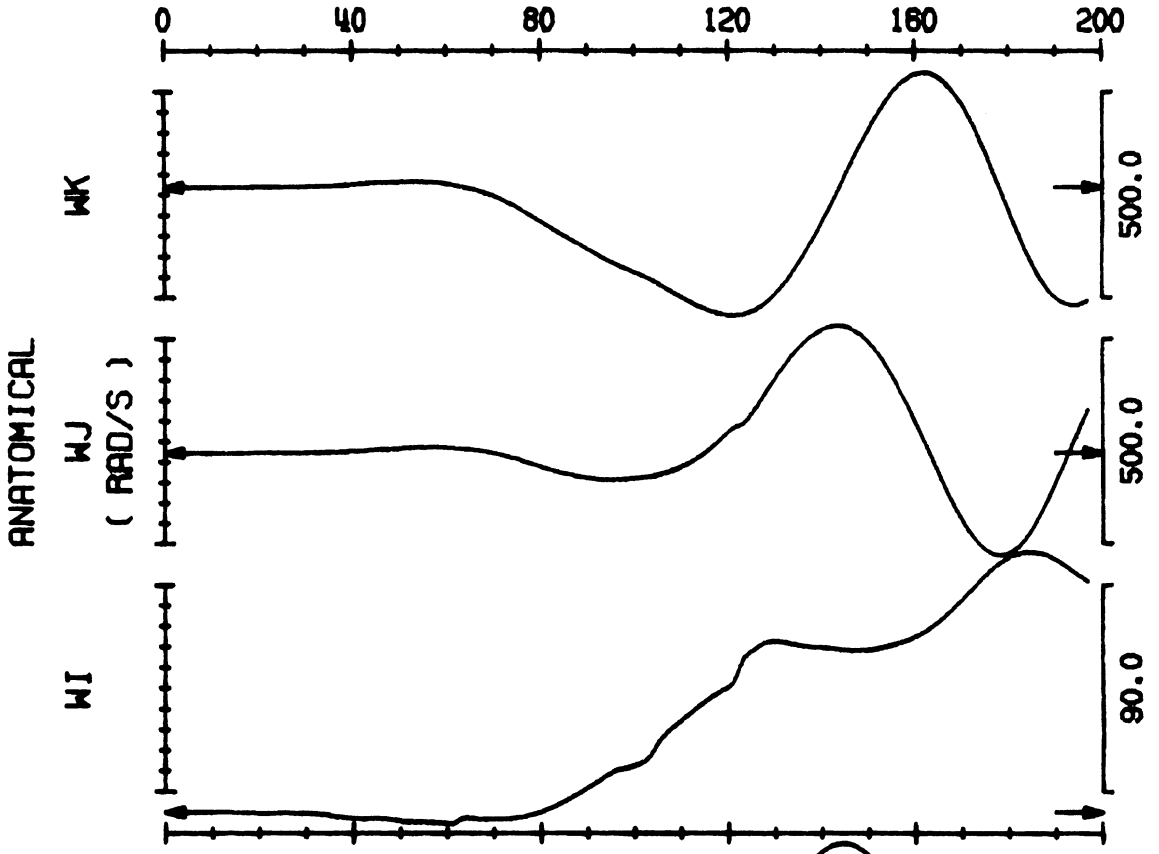
FILE: 345

A-913-2: DM9X-H

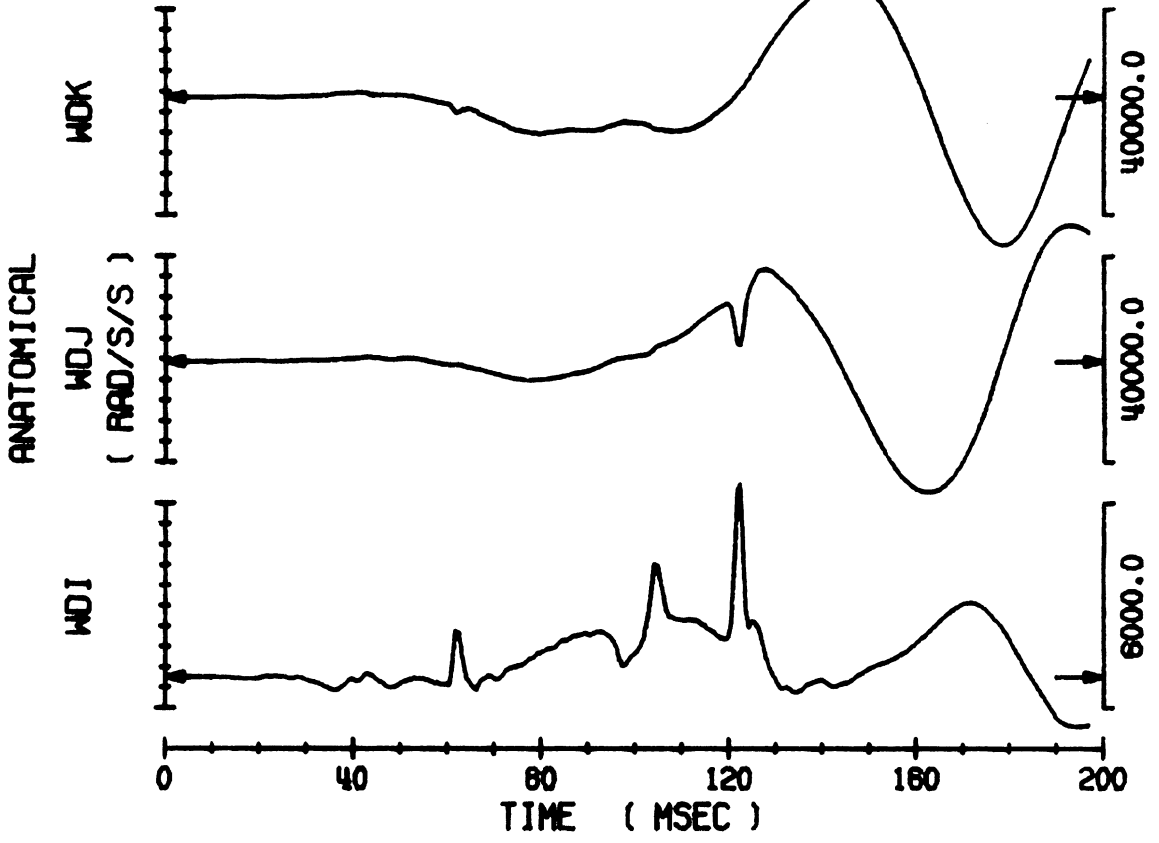


MEASURED ACCELERATIONS

ANG VELOCITIES



ANG ACCELERATIONS



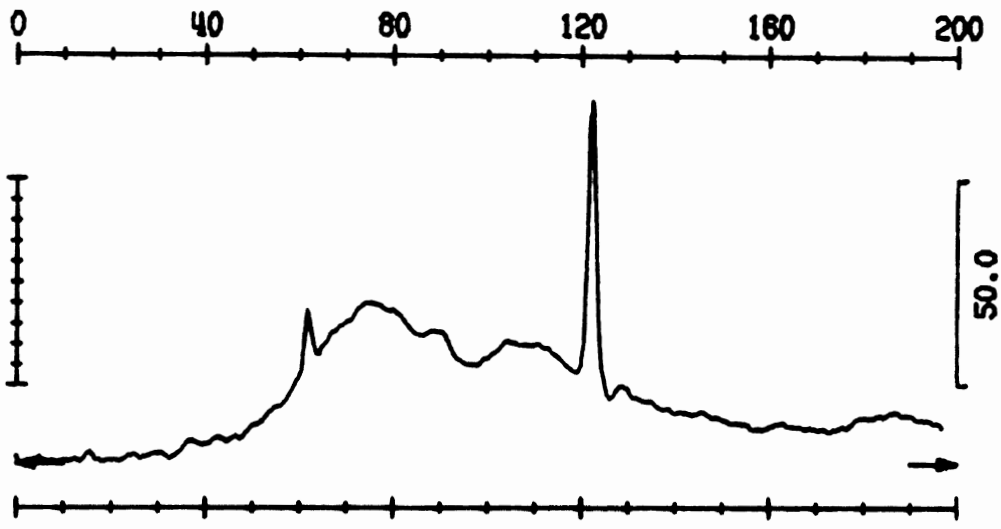
0 40 80 120 160 200

TIME (MSEC)

3-D ANGULAR MOTION

RESULTANT

GSI = 494
HIC = 375

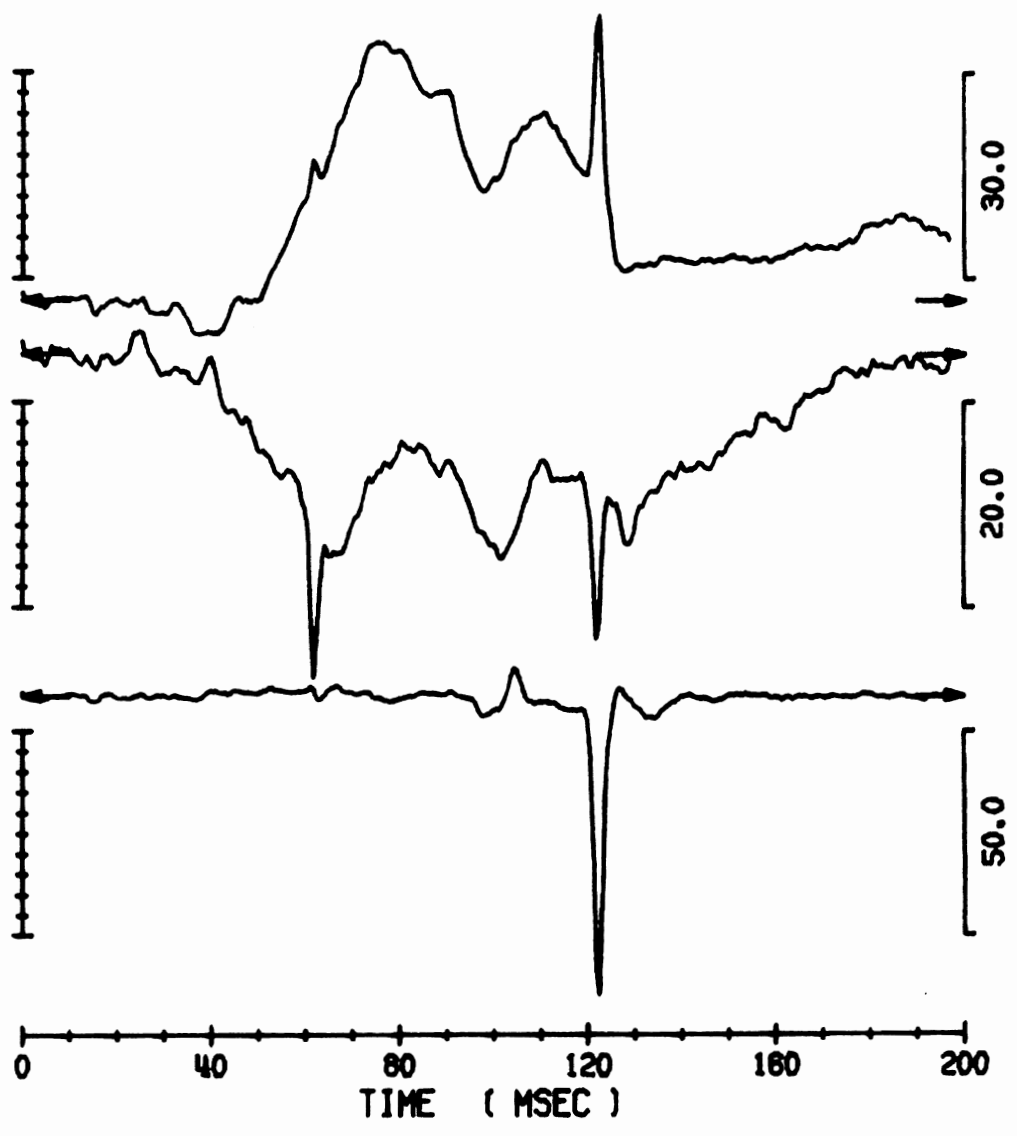


ACTUAL HEAD STD ACC

READINGS
L-R
(G'S)

A-P

S-I



MEASURED ACCELERATIONS

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: 76B007
=====

9.5 G-LEVEL
89. MS LONG
16.5 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|-------------------------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: (LBS) @ (MS), | 0. | 0. | 0. | 0. | 0. | 0. |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|--|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: (G'S) @ (MS) GSI= | 0. | -5. | 20. | 0. | 0. | -9. | 3. |
| | 0.0 | 121.8 | 76.3 | 0.0 | 0.0 | 126.2 | 79.7 |
| IN PELVIS ACC: (G'S) @ | 0. | -17. | 4. | 0. | 0. | -1. | 7. |
| | 0.0 | 96.4 | 126.8 | 0.0 | 0.0 | 153.8 | 103.2 |
| EX THORAX ACC: (G'S) @ | 22. | -20. | 5. | -9. | 0. | -4. | 9. |
| | 130.5 | 74.9 | 122.0 | 117.4 | 131.1 | 85.3 | 120.4 |
| | GSI= | 74 | | | | | |
| EX PELVIS ACC: (G'S) @ | 0. | -15. | 5. | 0. | 0. | -3. | 12. |
| | 0.0 | 95.1 | 128.0 | 0.0 | 0.0 | 72.0 | 101.2 |

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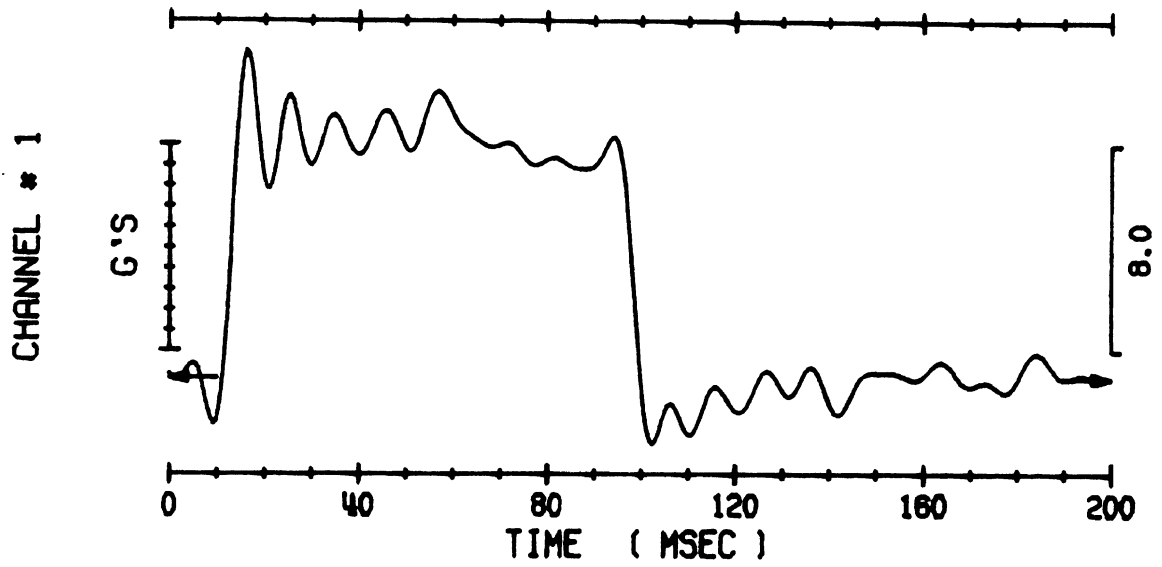
| | | | | | | | |
|----------------|-------|--------|-------|-------|-------|-------|-------|
| HEAD ANG ACC : | 1250. | -1019. | 117. | -991. | 1215. | -553. | 702. |
| (RAD/S/S) @ | 68.1 | 147.4 | 132.9 | 117.9 | 67.4 | 177.1 | 124.6 |
| HEAD ANG VEL : | 33.5 | -27.3 | 6.3 | 2.4 | 32.5 | -1.5 | 14.5 |
| (RAD/S) @ | 37.4 | 173.7 | 87.5 | 173.7 | 88.4 | 50.5 | 145.9 |
| EULER ANGLES : | | | 109.8 | | 75.4 | | 109.3 |
| (DEGREES) @ | | | 143.7 | | 118.3 | | 139.3 |

.....

| | | | | | | | |
|----------------|-------|-------|-------|-------|-------|-------|-------|
| HEAD C.G. ACC: | 35. | -23. | 6. | -5. | 4. | -33. | -4. |
| (G'S) @ | 95.6 | 119.1 | 173.7 | 177.1 | 127.4 | 93.8 | 122.7 |
| HEAD C.G. HIC= | 200 | | | | | | |
| HEAD C.G. VEL: | 606. | -551. | 12. | -76. | 43. | -121. | 207. |
| (IN/S) @ | 185.6 | 173.7 | 49.9 | 173.7 | 104.3 | 100.9 | 161.3 |
| HEAD C.G. DIS: | | | -21.1 | | 1.9 | | 0.4 |
| (IN) @ | | | 146.2 | | 144.2 | | 146.2 |

FILE: 347

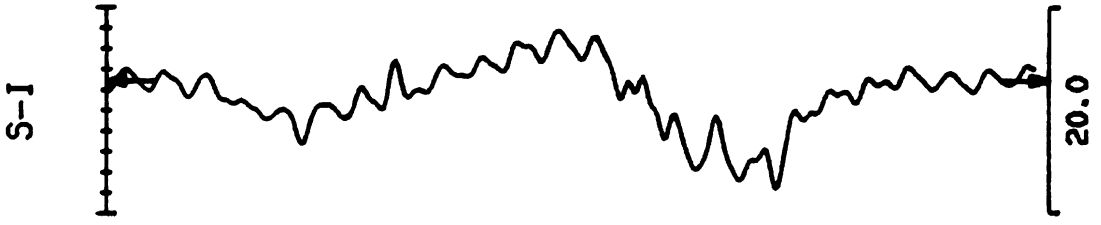
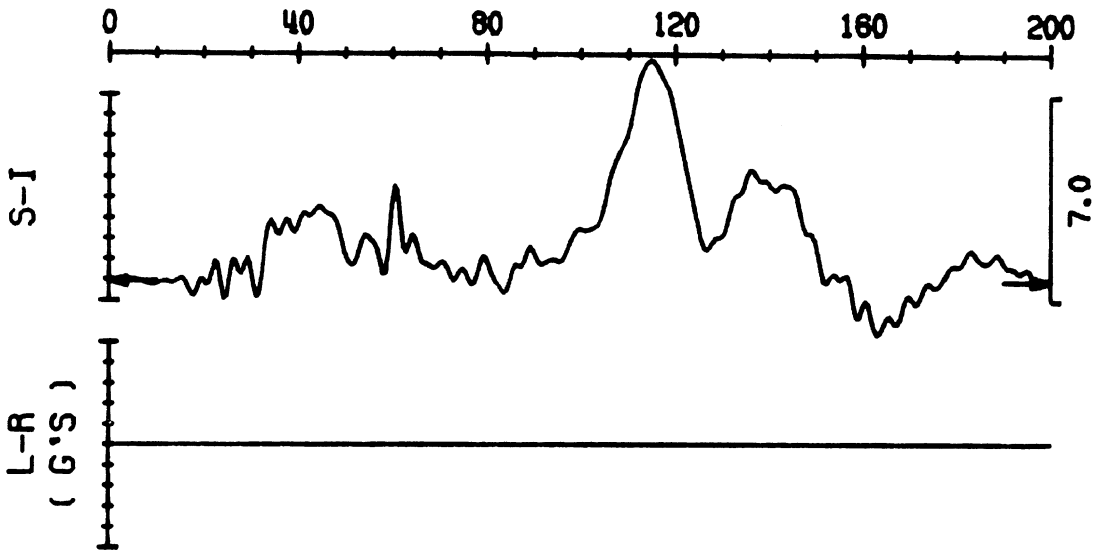
76B007-1: DUM-L



SLED DECELERATION

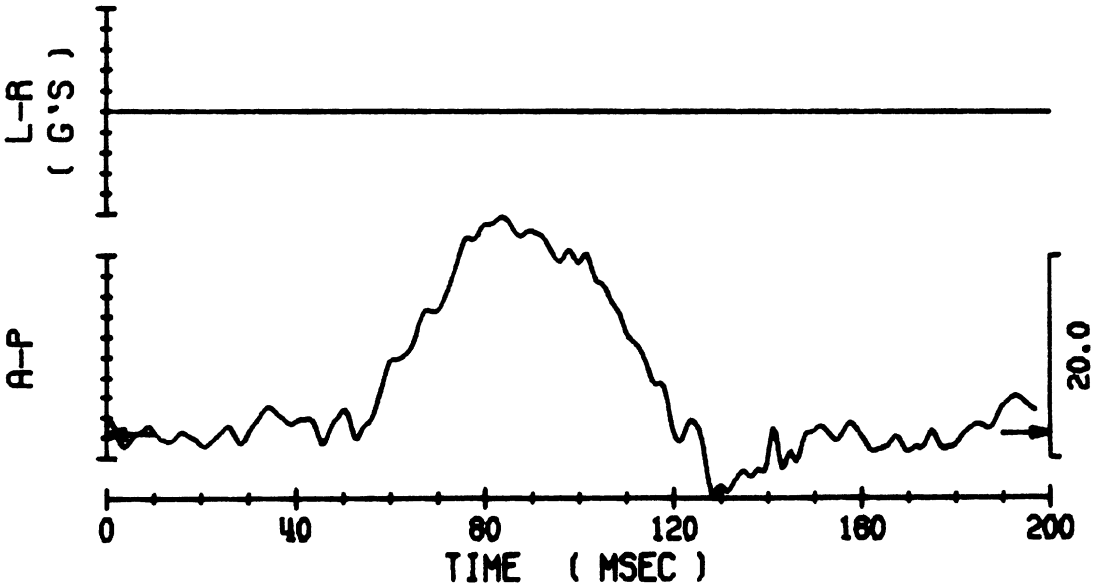
PELVIS

INTERNAL

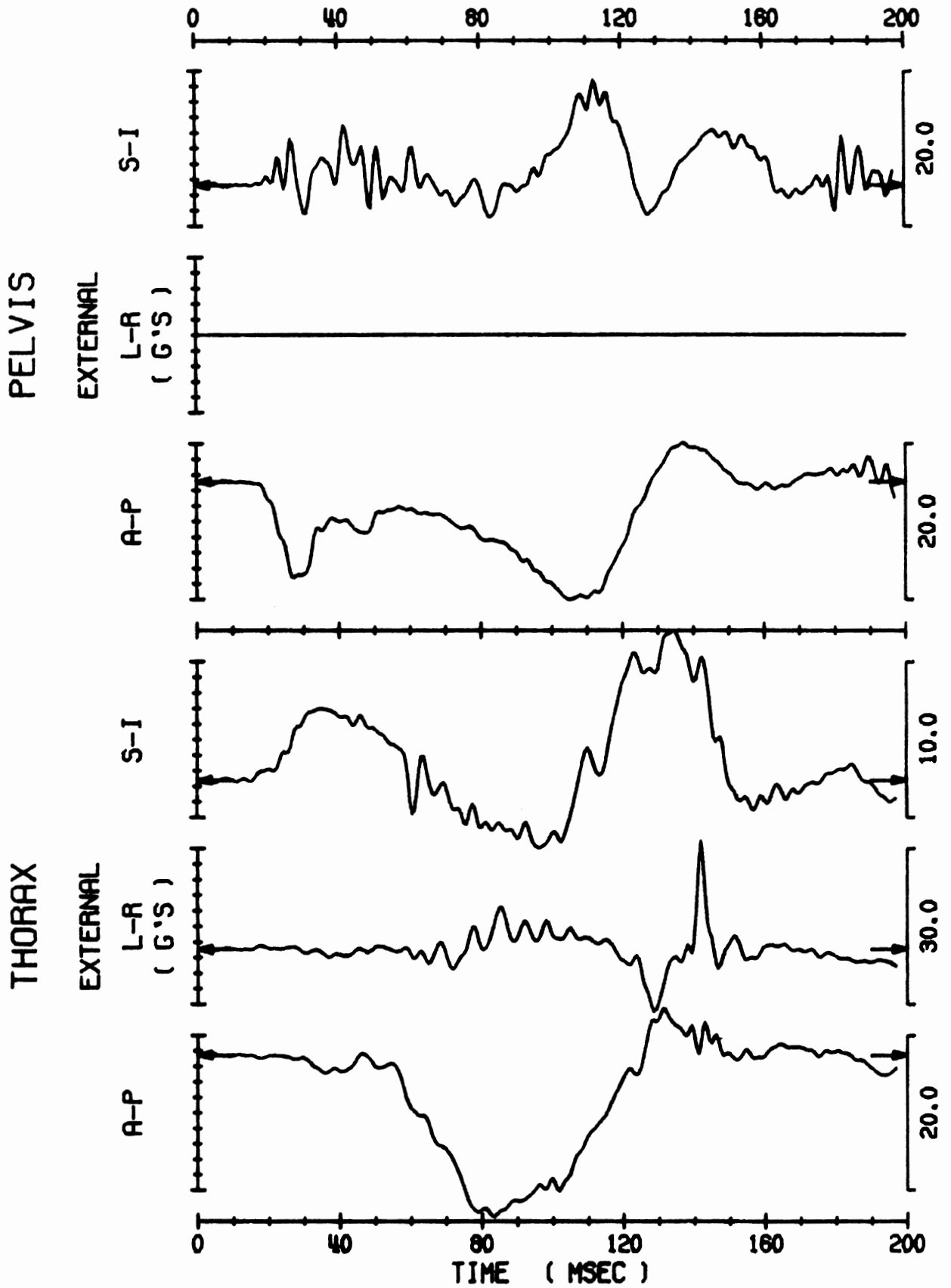


THORAX

INTERNAL

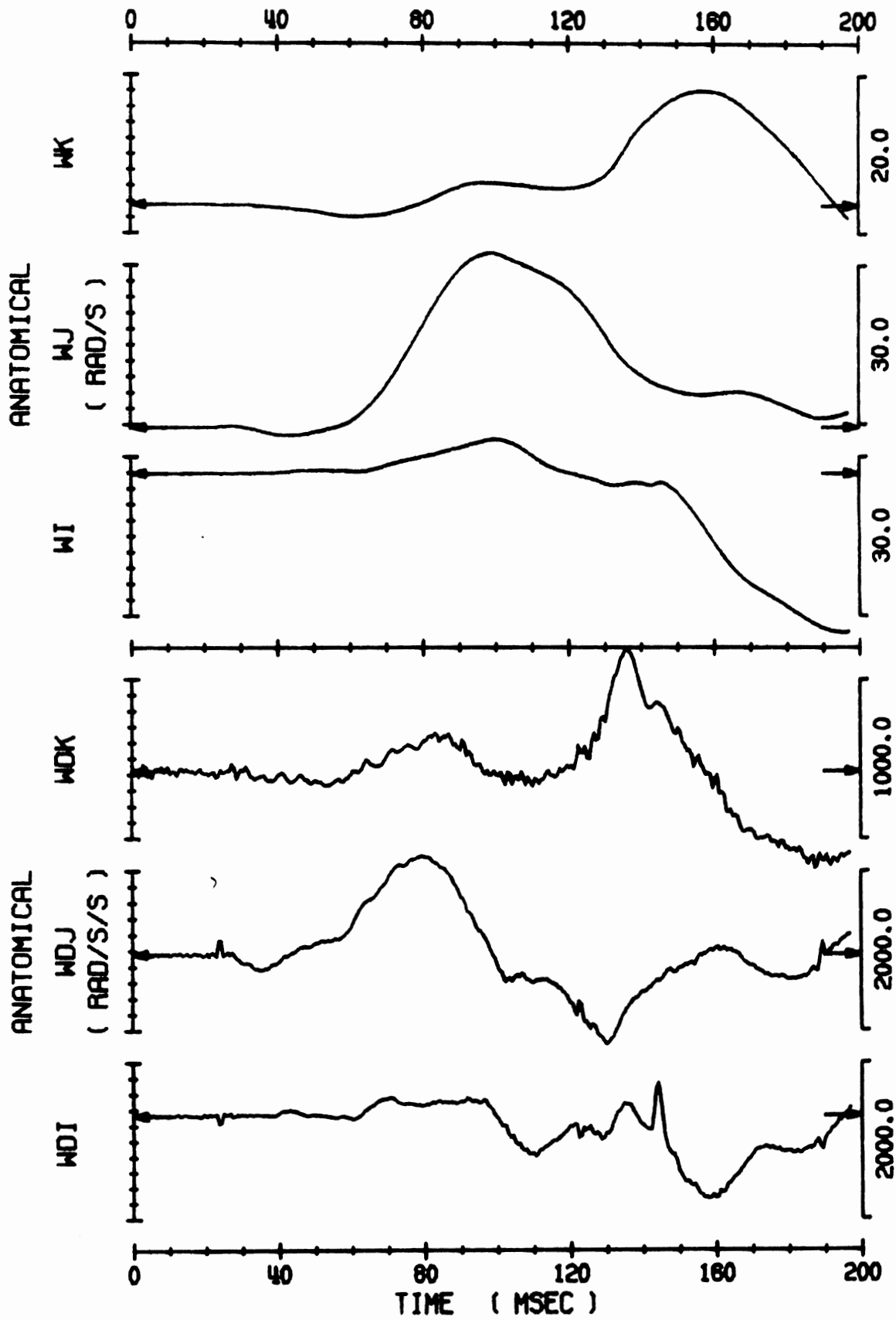


MEASURED ACCELERATIONS



MEASURED ACCELERATIONS

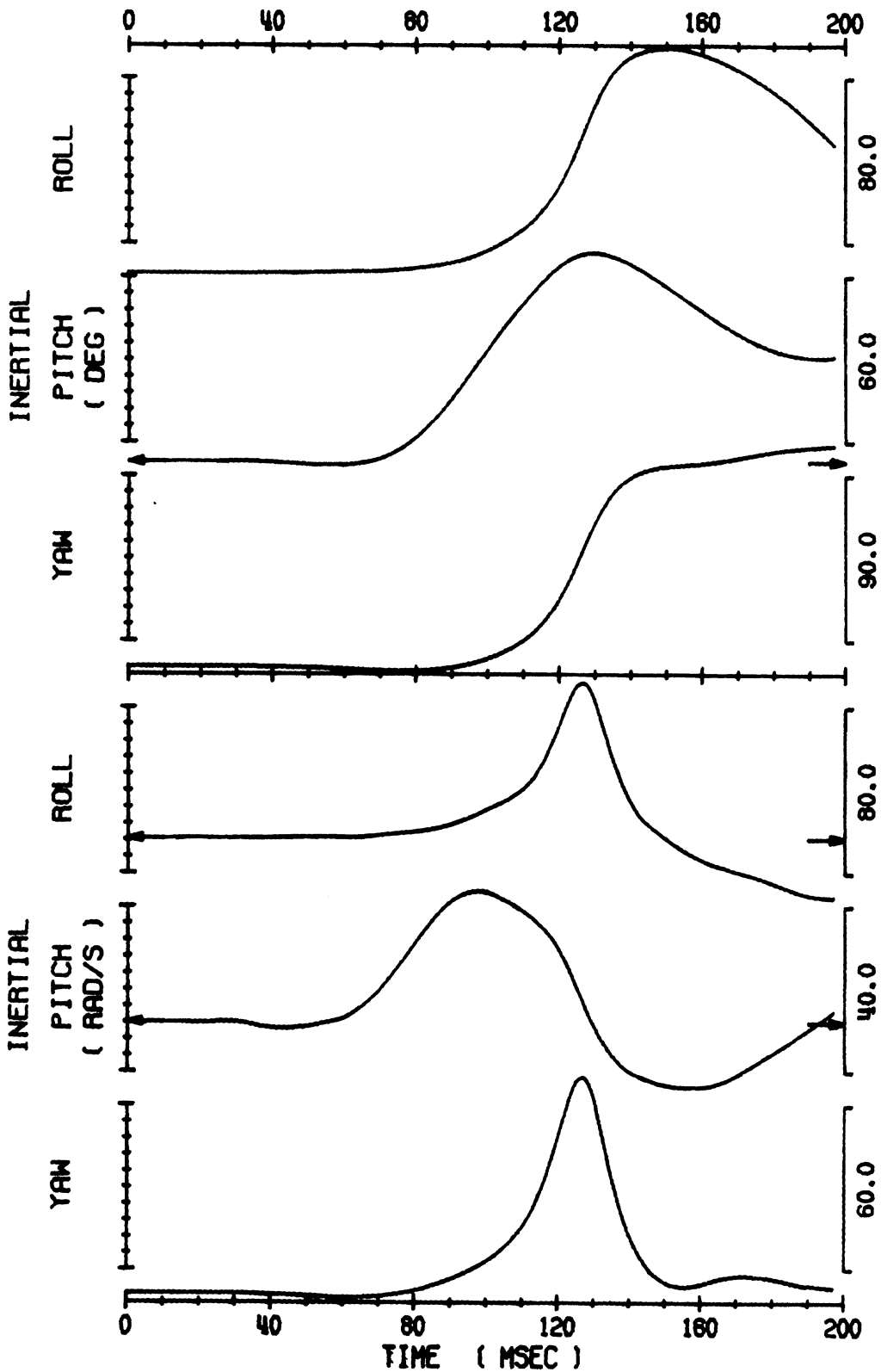
ANG VELOCITIES
ANG ACCELERATIONS



3-D ANGULAR MOTION

EULER ANGLES

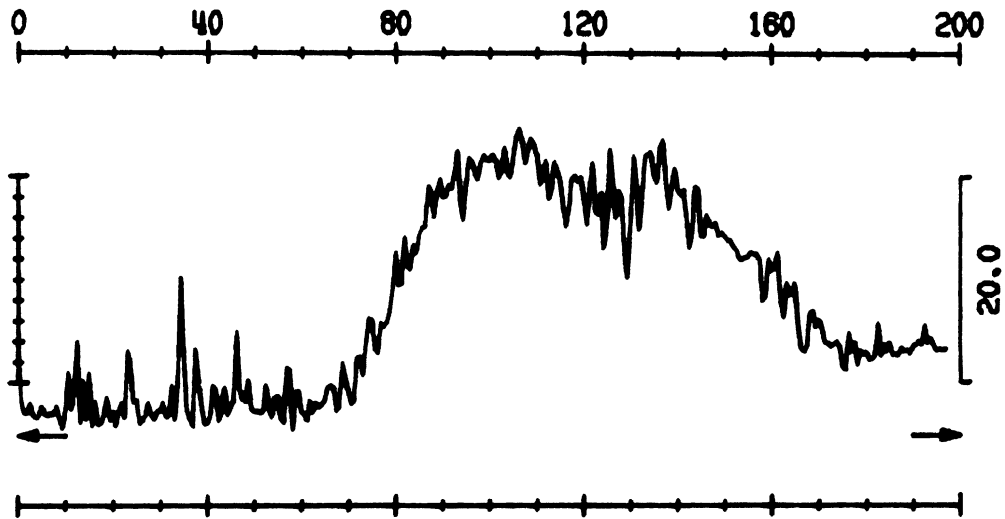
EULER RATES



3-D ROTATIONS

RESULTANT

GSI = 225
HIC = 199



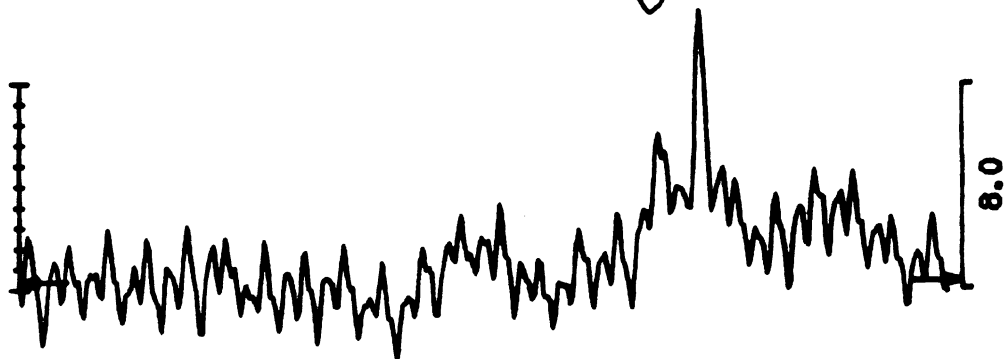
ACTUAL HEAD STD ACC

S-I

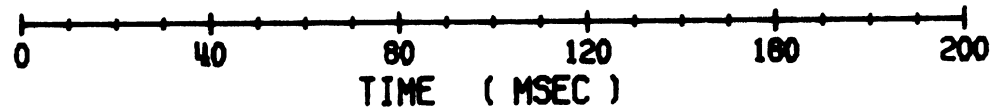
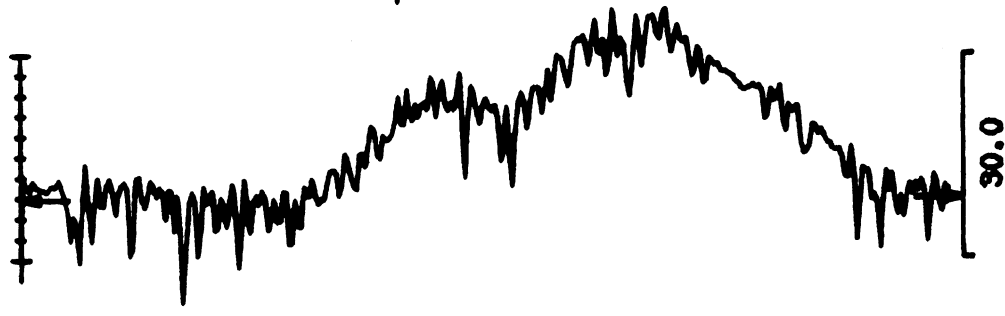


READINGS

L-R
(G'S)



A-P

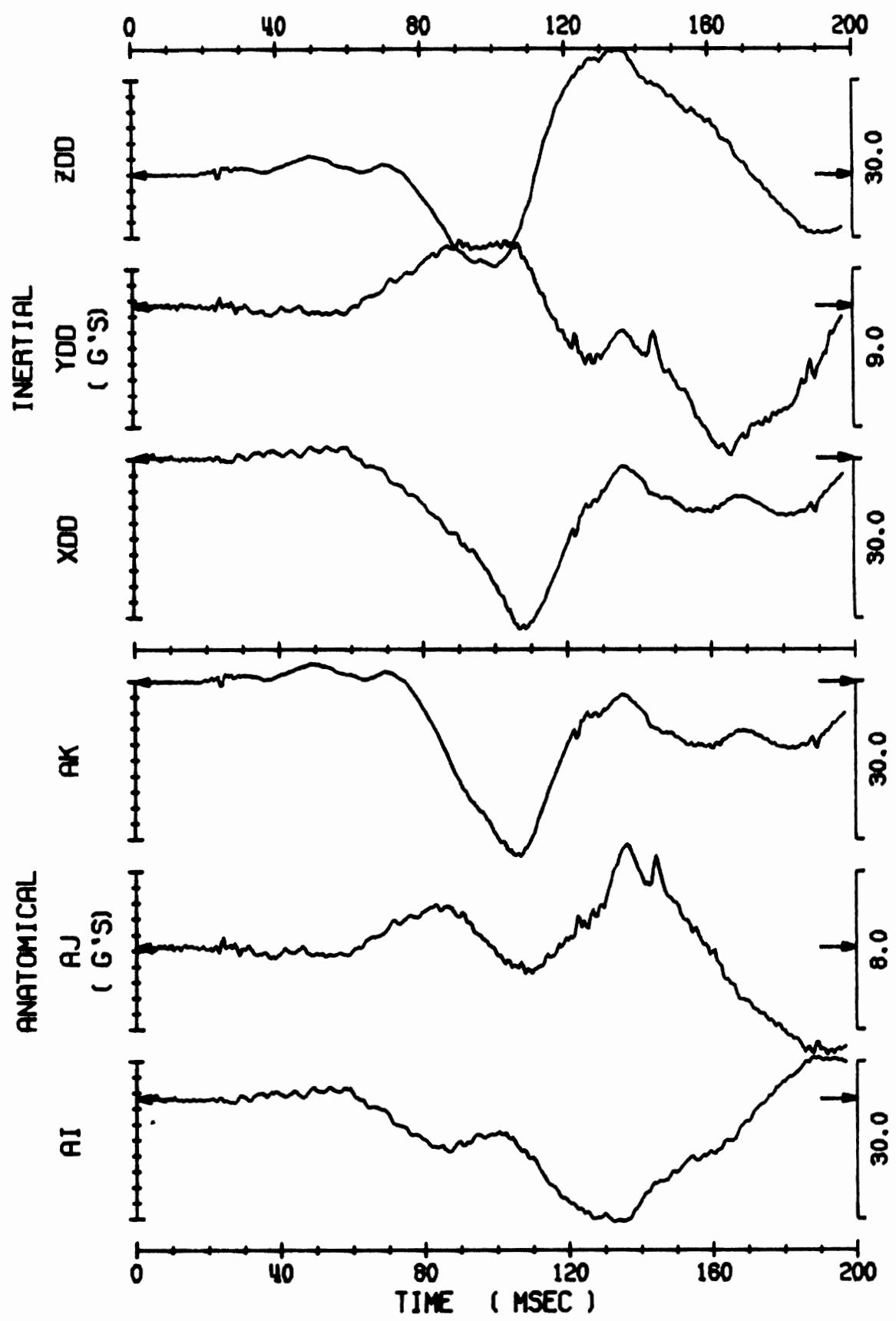


MEASURED ACCELERATIONS

ACC OF: HEAD STD TRIAX GSI= 244, HIC= 200

FILE: 353

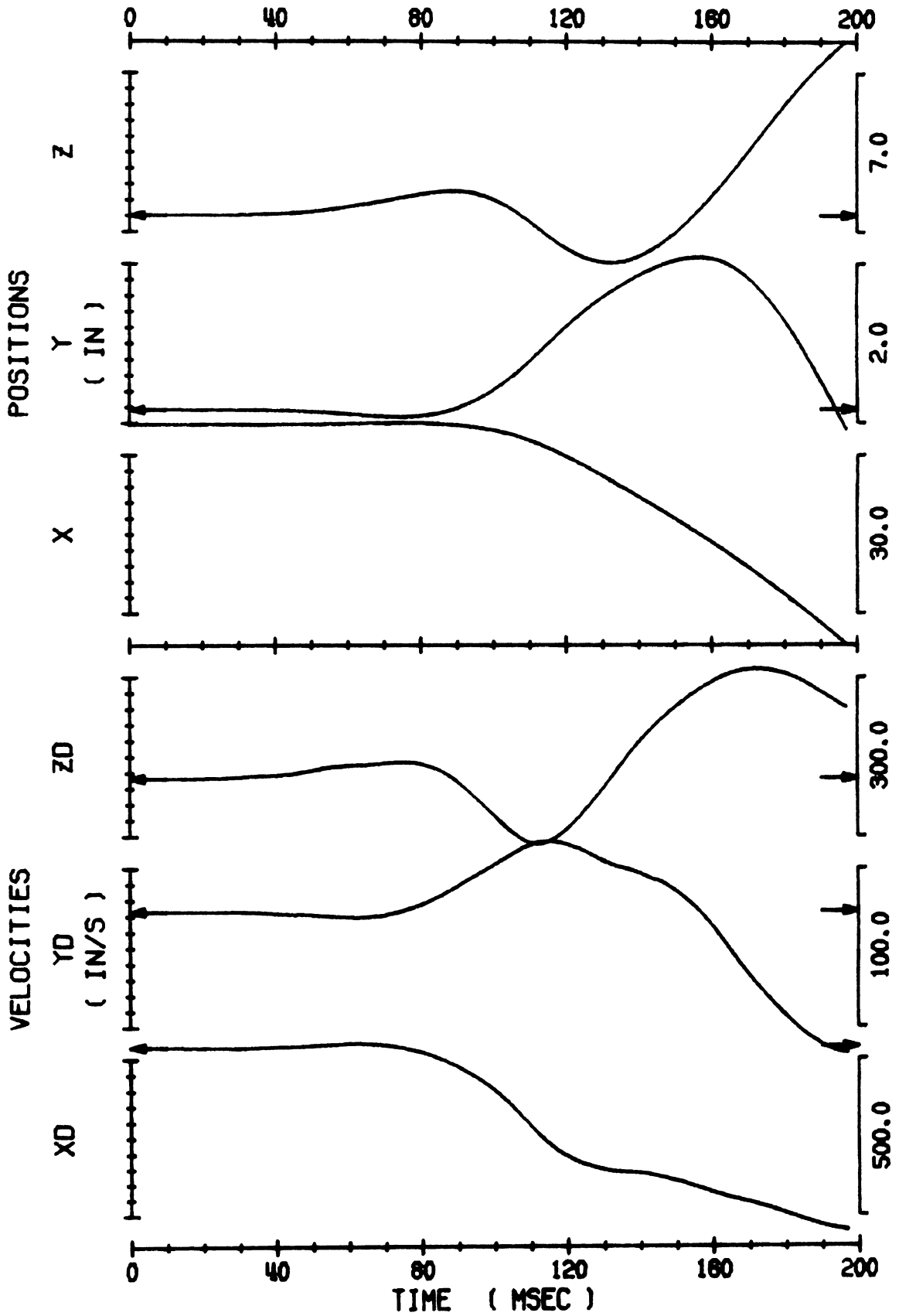
76B007-1: DUM-L



3-D ACCELERATIONS

HEAD STD TRIAX

INERTIAL MOTION OF:



3-D TRANSLATIONS

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: 76B008
=====

SUBJECT: DUM-L

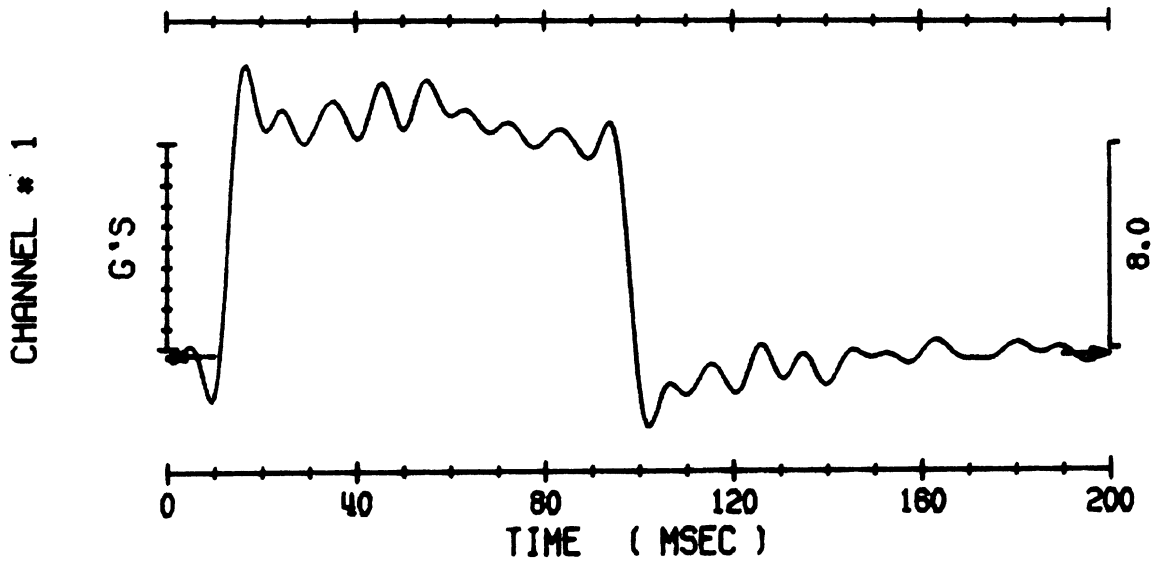
9.4 G-LEVEL
88. MS LONG
16.0 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1032. | 783. | 550. | 1210. | 0. | 0. |
| (LBS) @ (MS) | 82.4 | 85.6 | 95.6 | 89.9 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|--------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | -5. | 22. | 0. | 0. | -6. | 4. |
| (G'S) @ (MS) | 0.0 | 123.5 | 75.0 | 0.0 | 0.0 | 121.8 | 78.3 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | -16. | 4. | 0. | 0. | 0. | 7. |
| (G'S) @ | 0.0 | 93.9 | 124.0 | 0.0 | 0.0 | 66.9 | 101.1 |
| EX THORAX ACC: | 24. | -21. | . | -12. | 6. | -5. | 7. |
| (G'S) @ | 74.3 | 75.1 | 122.2 | 119.2 | 88.7 | 76.9 | 117.4 |
| GSI= | 79 | | | | | | |
| EX PELVIS ACC: | 0. | -15. | 4. | 0. | 0. | -2. | 12. |
| (G'S) @ | 0.0 | 94.3 | 125.4 | 0.0 | 0.0 | 67.8 | 98.6 |
| | | | | | | | |
| HEAD ANG ACC : | 1447. | -774. | 112. | -1055. | 1241. | -538. | 548. |
| (RAD/S/S) @ | 68.0 | 146.3 | 129.1 | 116.4 | 66.6 | 173.7 | 126.9 |
| HEAD ANG VEL : | 34.5 | -25.6 | 4.9 | -2.0 | 33.5 | 0.0 | 19.8 |
| (RAD/S) @ | 88.0 | 173.7 | 85.1 | 26.4 | 83.6 | 21.1 | 149.0 |
| EULER ANGLES : | | | 112.2 | | 68.8 | | 99.9 |
| (DEGREES) @ | | | 153.7 | | 113.8 | | 136.5 |
| | | | | | | | |
| HEAD C.G. ACC: | 34. | -25. | 5. | -6. | 4. | -31. | -4. |
| (G'S) @ | 94.9 | 115.9 | 178.1 | 173.7 | 129.2 | 91.0 | 127.0 |
| HEAD C.G. HIC= | 241 | | | | | | |
| HEAD C.G. VEL: | 663. | -591. | 10. | -185. | 34. | -121. | 213. |
| (IN/S) @ | 184.8 | 173.7 | 50.6 | 173.7 | 94.6 | 98.6 | 157.9 |
| HEAD C.G. DIS: | | | -11.2 | | 1.0 | | -2.1 |
| (IN) @ | | | 118.7 | | 115.1 | | 117.8 |

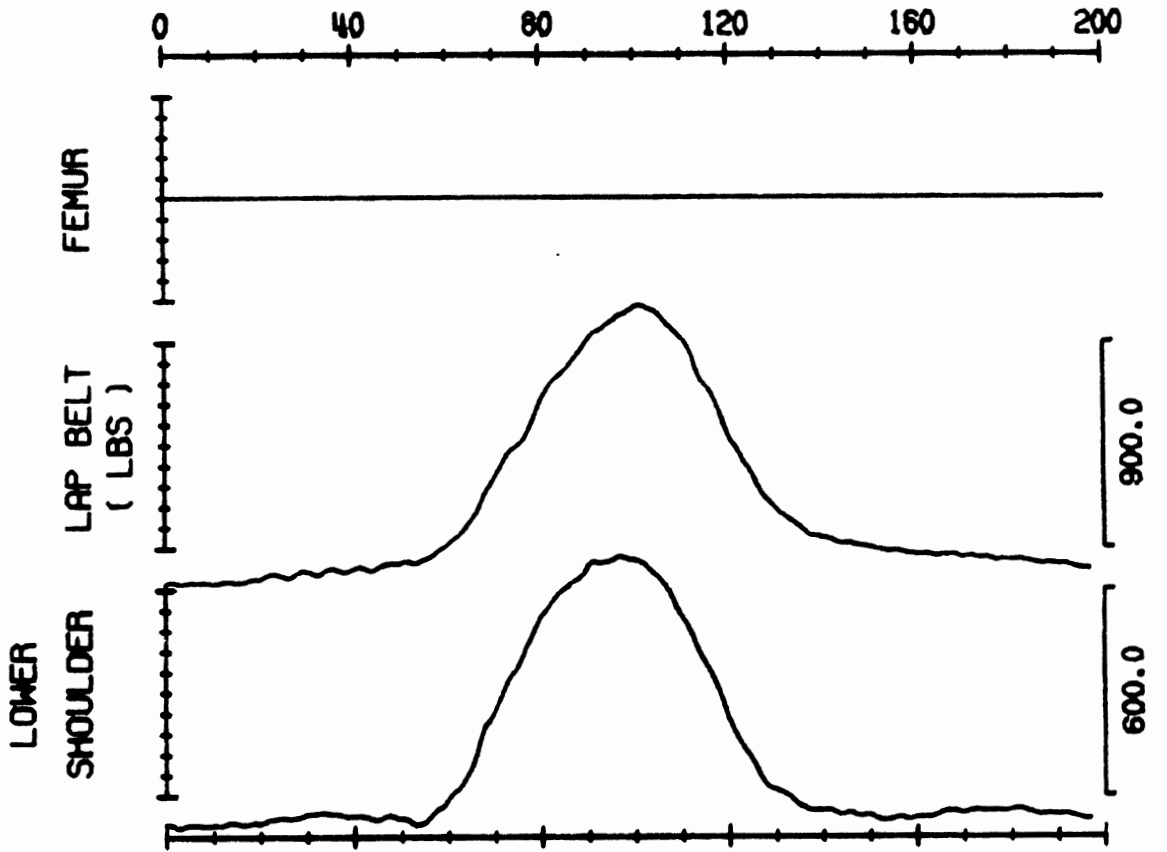
FILE: 358

76B008-1: DUM-L

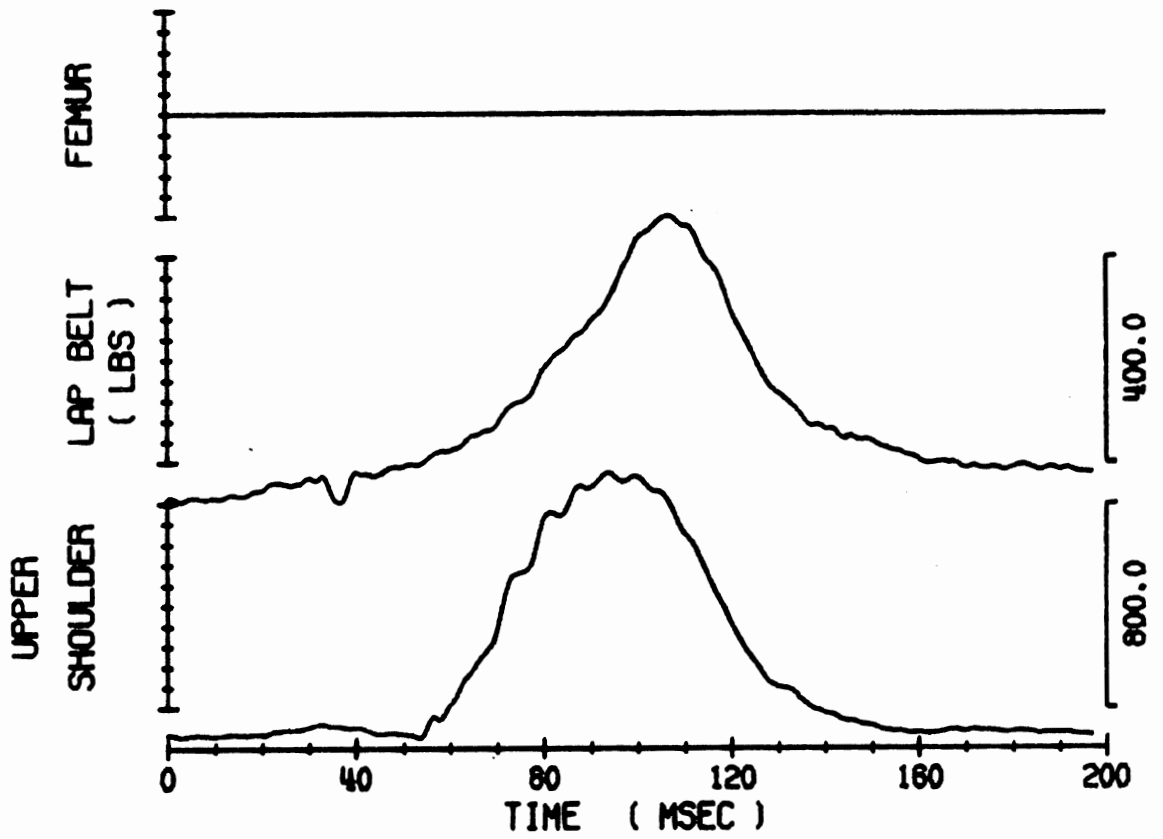


SLED DECELERATION

RIGHT SIDE



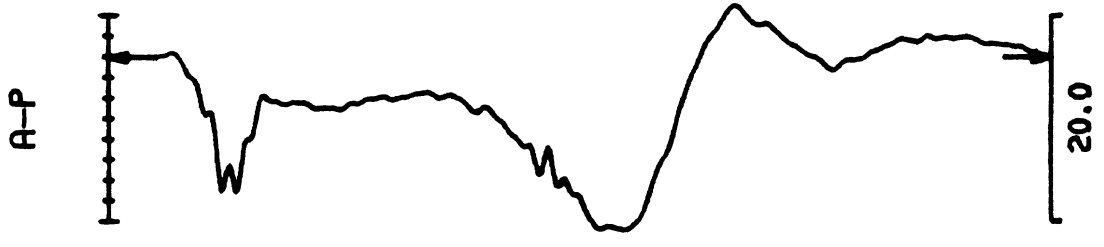
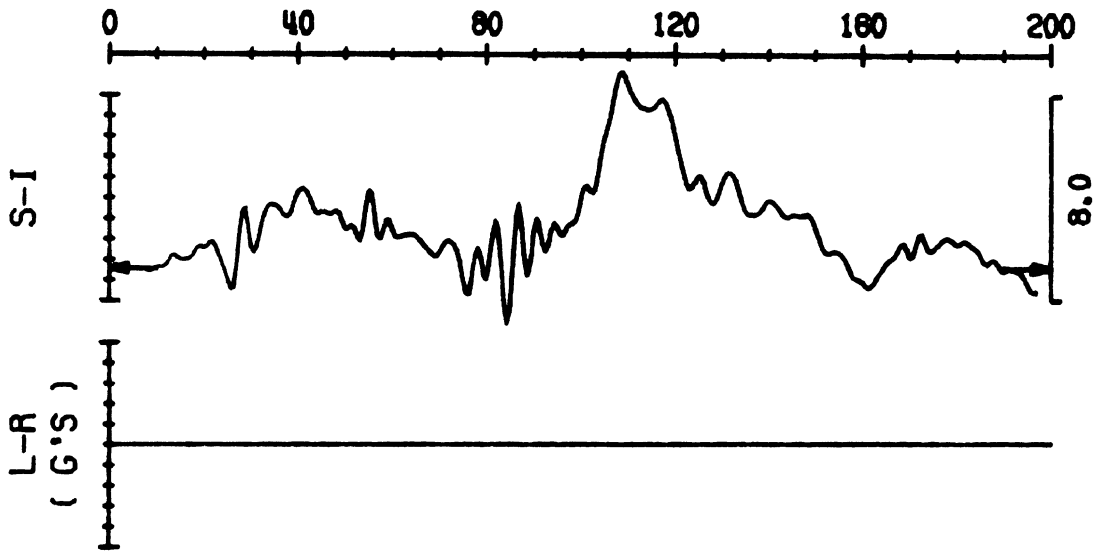
LEFT SIDE



MEASURED FORCES

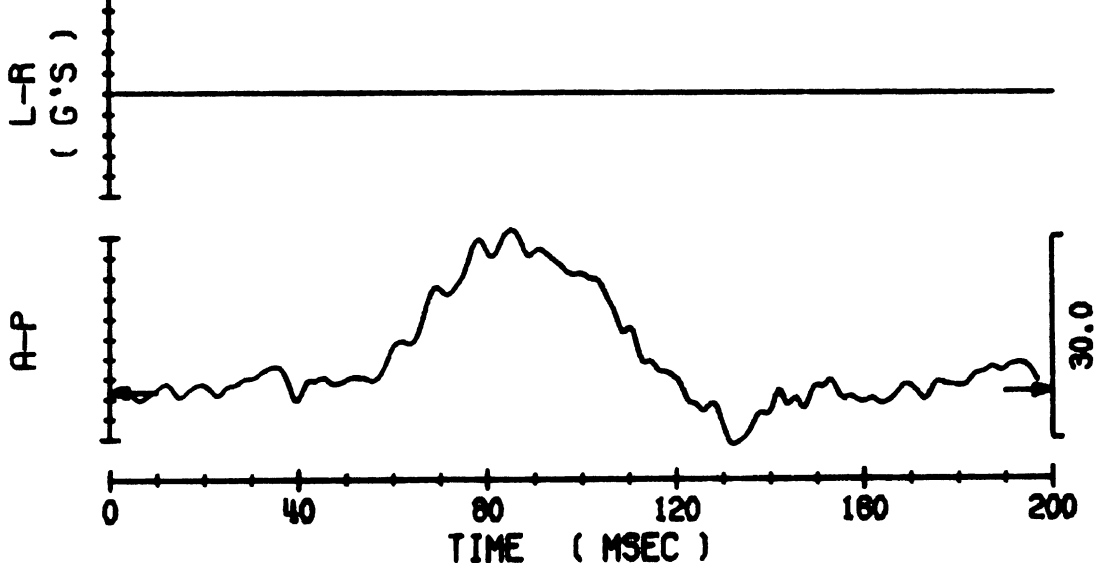
PELVIS

INTERNAL



THORAX

INTERNAL

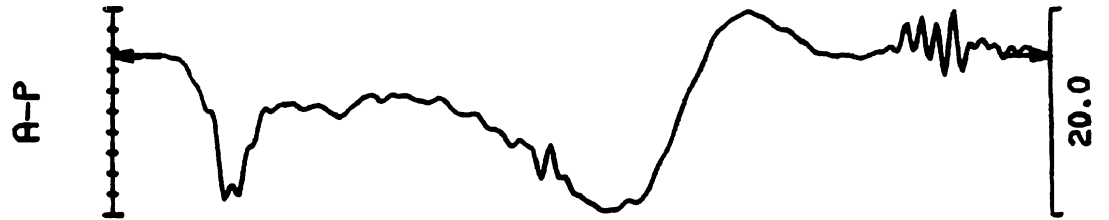
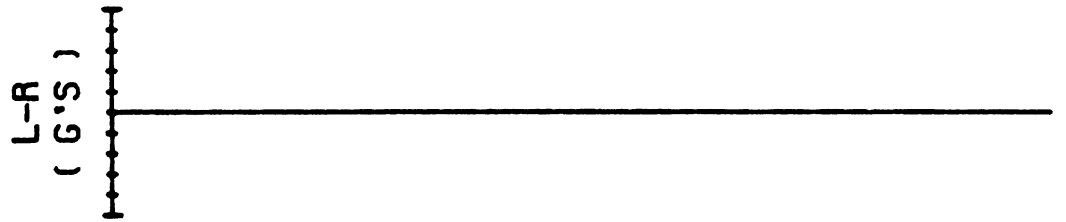
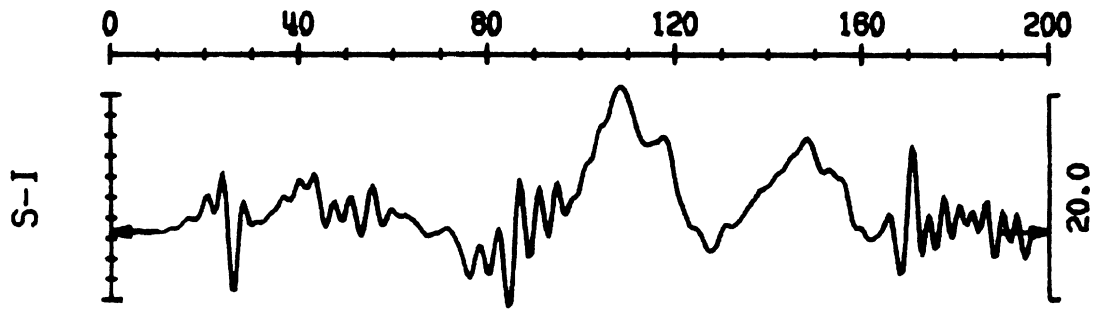


TIME (MSEC)

MEASURED ACCELERATIONS

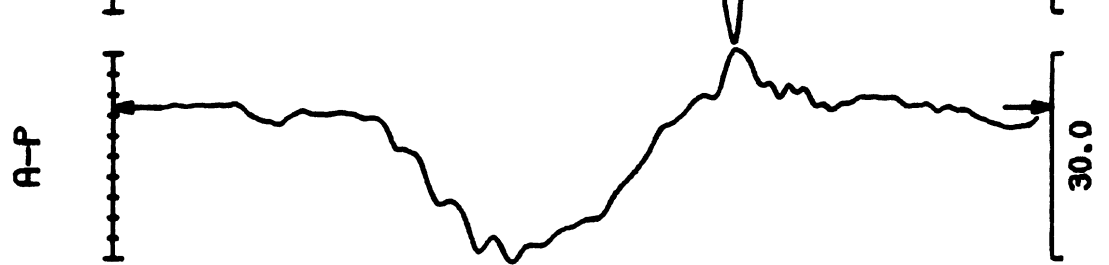
PELVIS

EXTERNAL



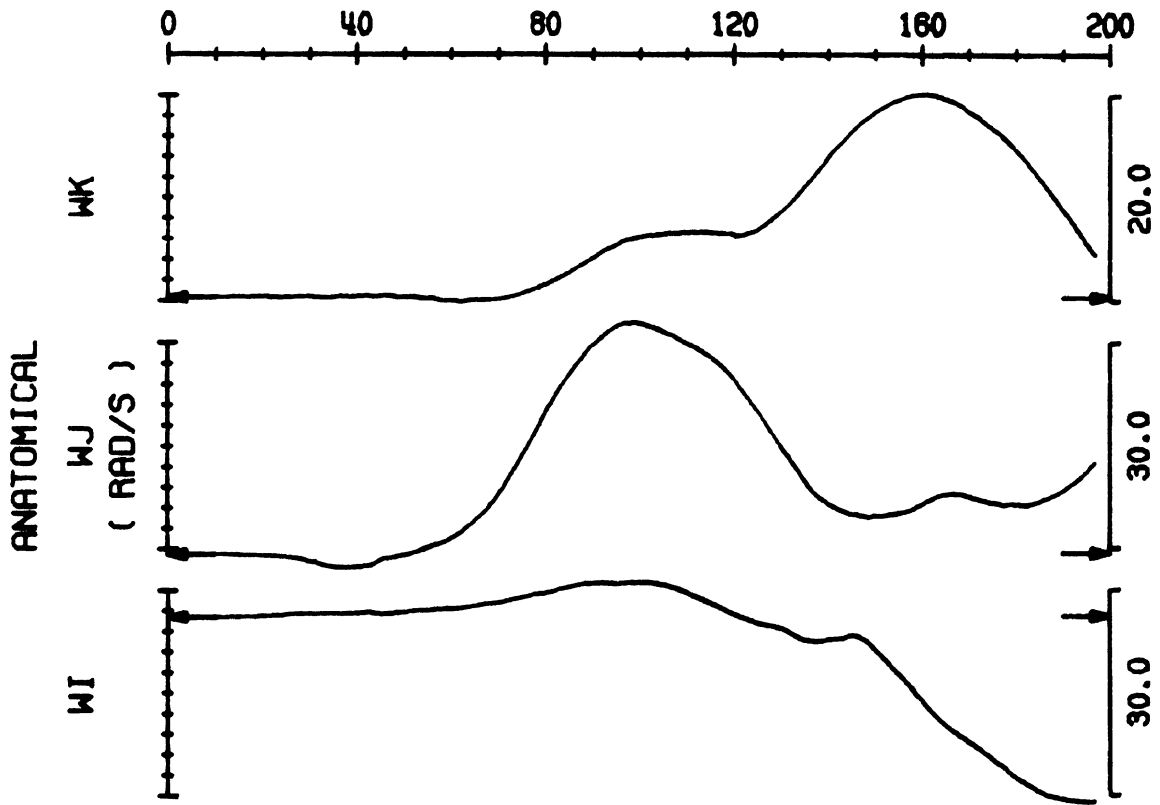
THORAX

EXTERNAL

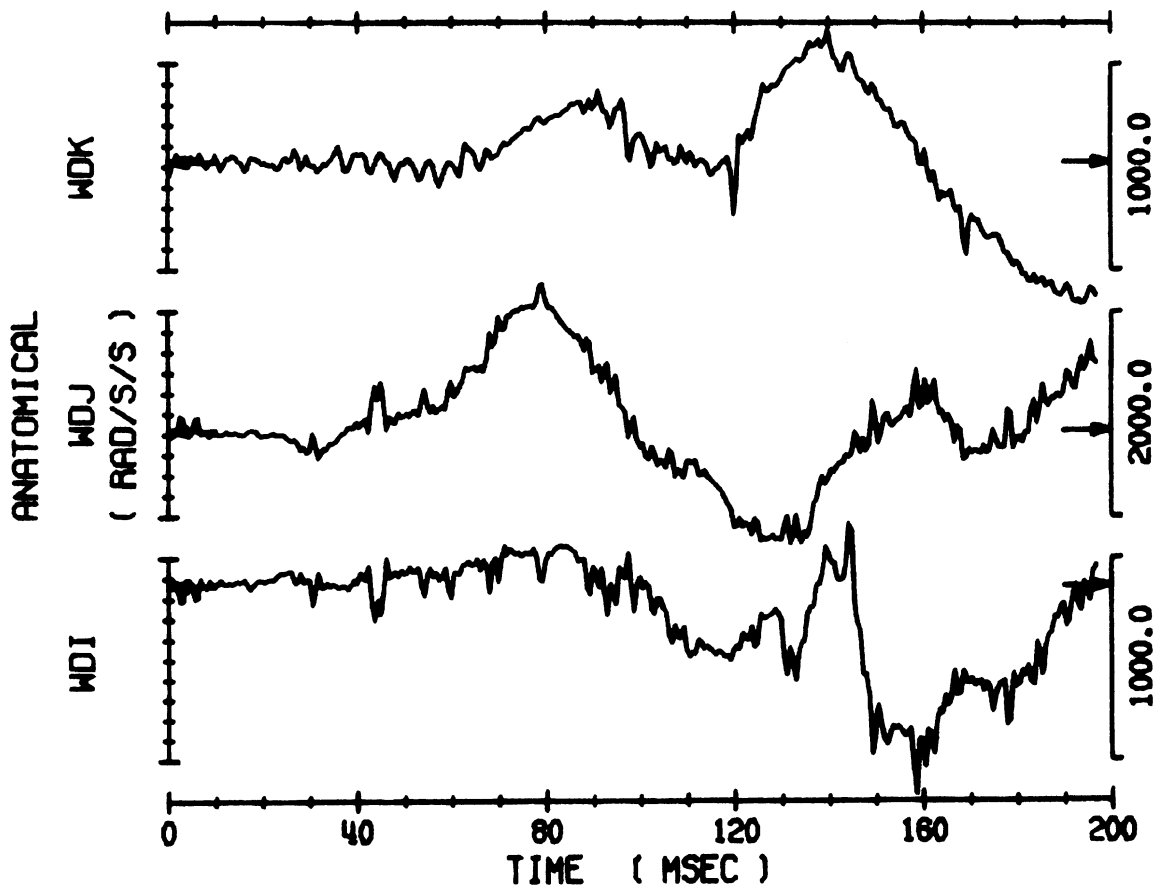


MEASURED ACCELERATIONS

ANG VELOCITIES

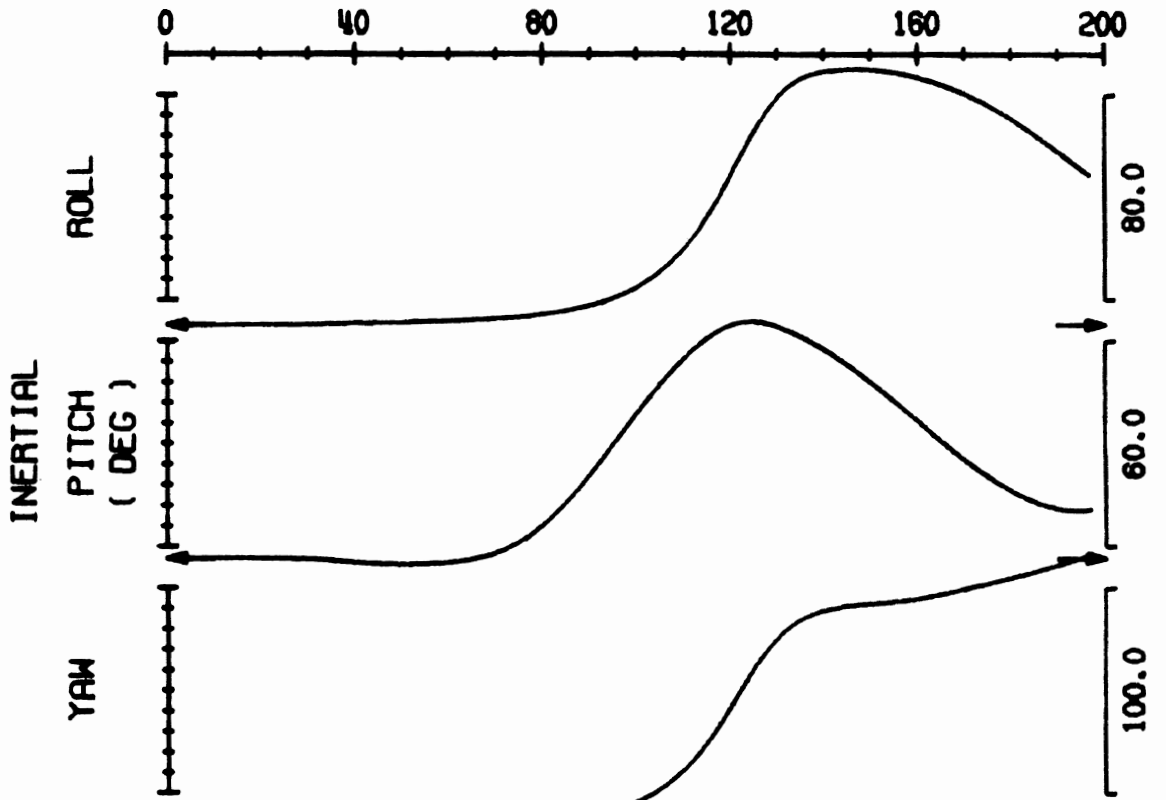


ANG ACCELERATIONS

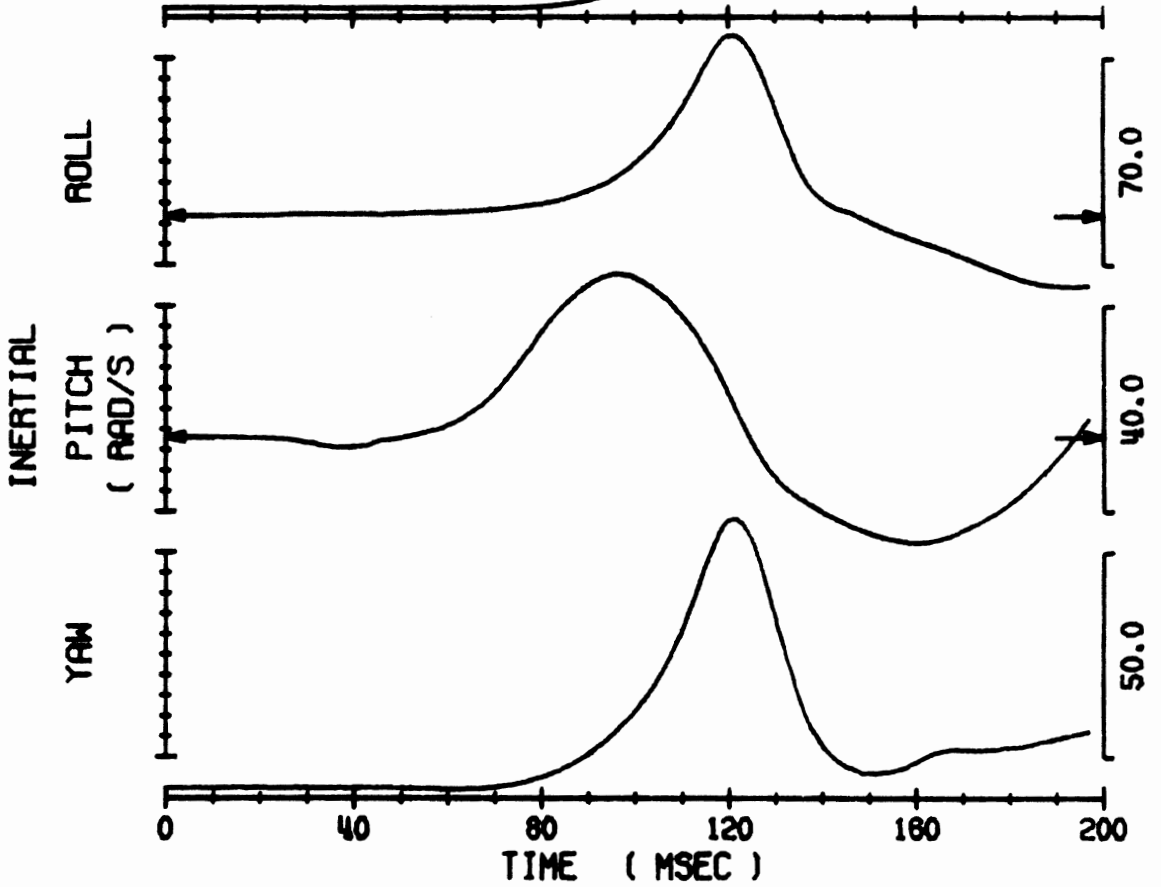


3-D ANGULAR MOTION

EULER ANGLES



EULER RATES

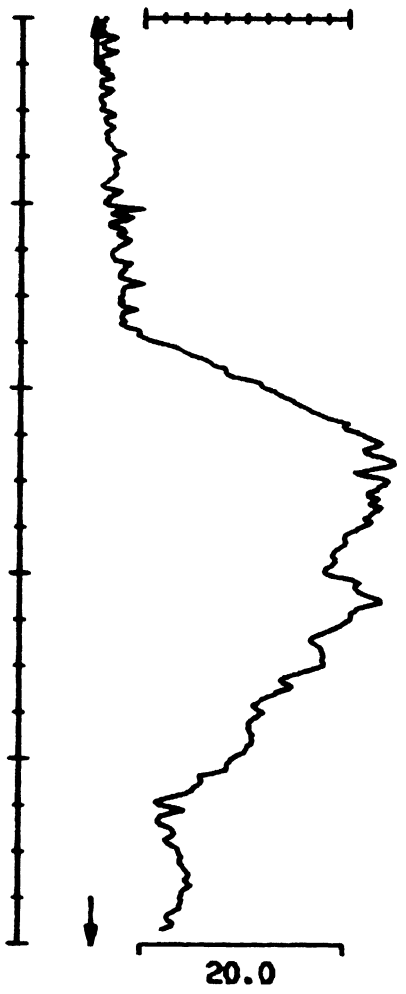


3-D ROTATIONS



RESULTANT

GSI = 230
HIC = 203



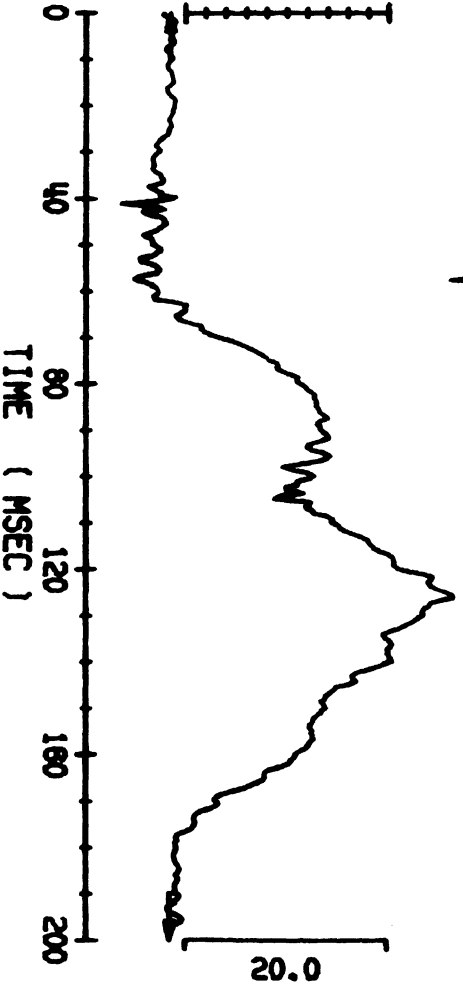
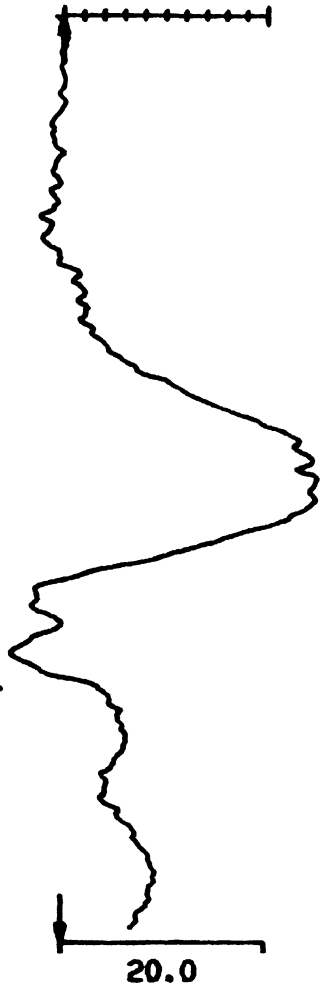
HEAD STD TRIAX (ACT)

READINGS

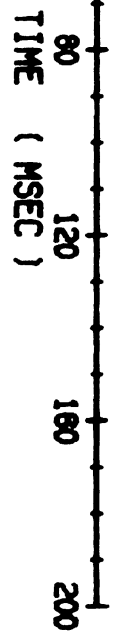
L-R
(G'S)

S-I

A-P



MEASURED ACCELERATIONS

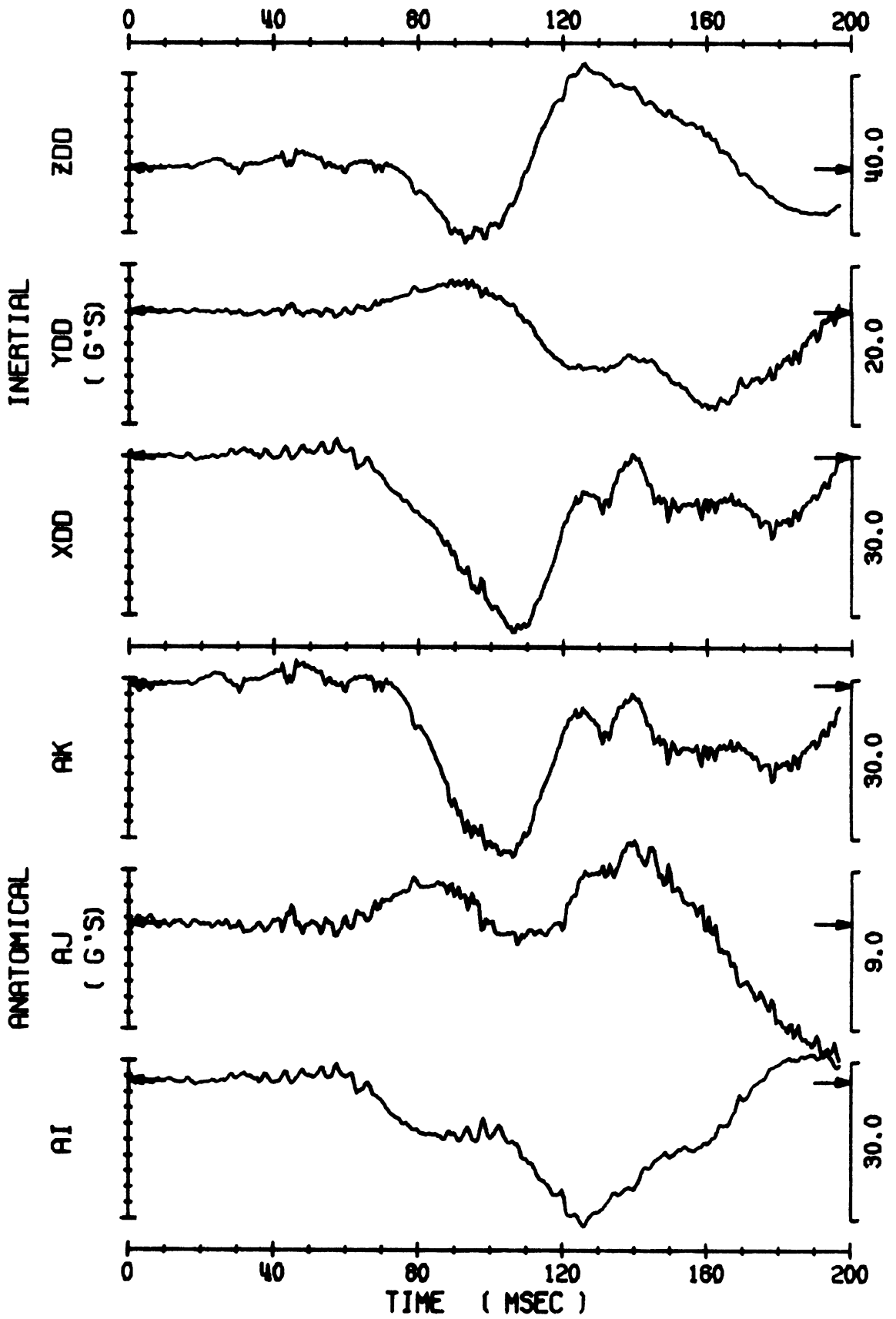


ACC OF: HEAD STD TRIAX GSI= 285, HIC= 241

76B008-1: DUM-L

FILE: 364

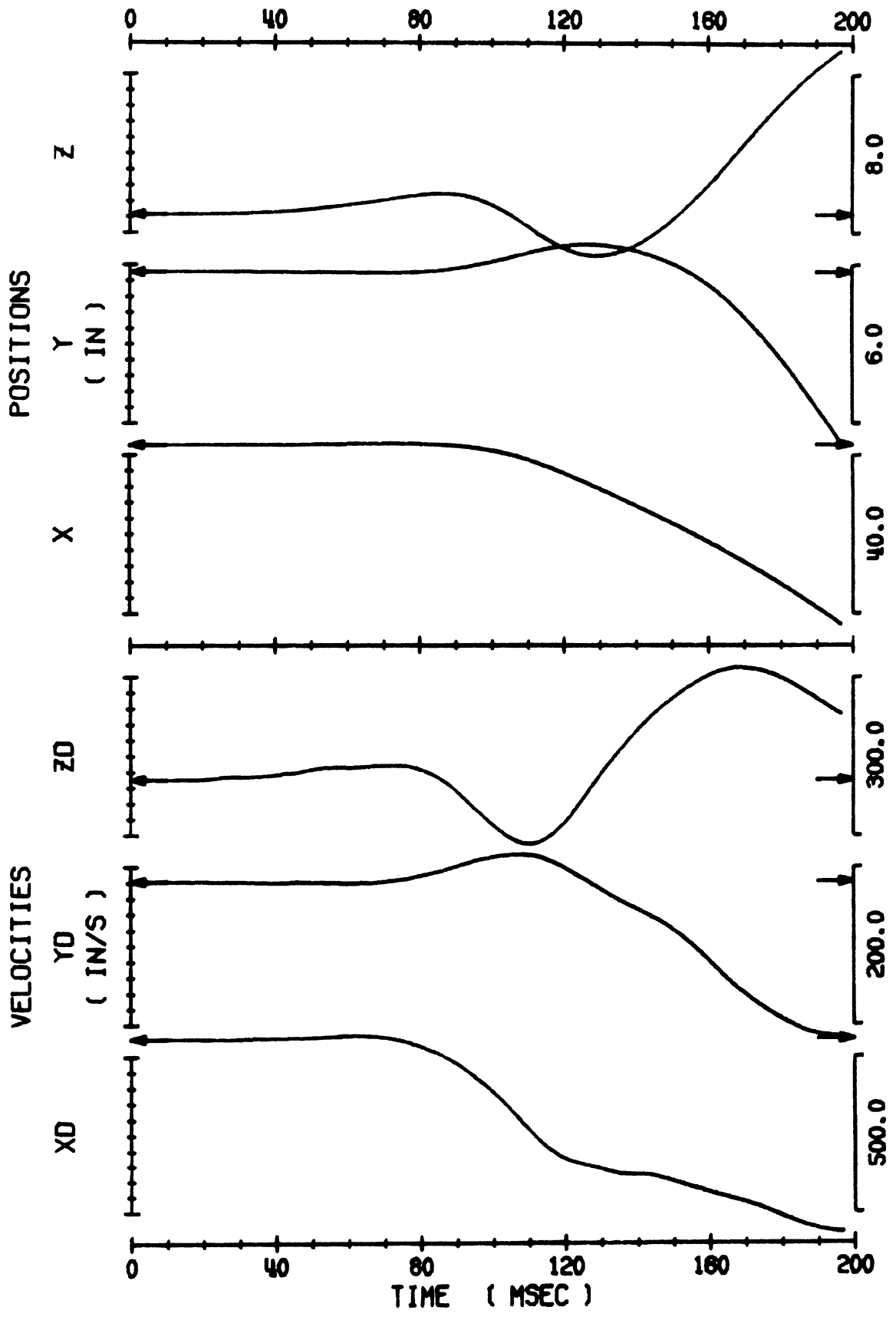
76B008-1: DUM-L



3-D ACCELERATIONS

HEAD STD TRIAX

INERTIAL MOTION OF:



3-D TRANSLATIONS

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: 76B009
=====

SUBJECT: DUM-L

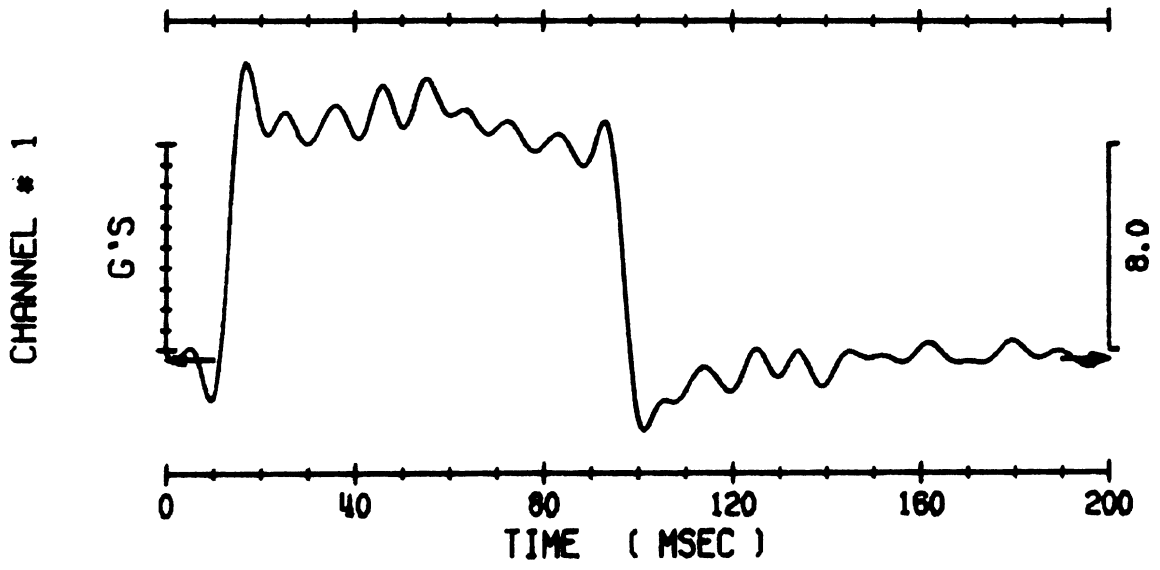
9.5 G-LEVEL
87. MS LONG
16.1 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1060. | 797. | 582. | 1134. | 0. | 0. |
| (LBS) @ (MS) | 87.9 | 84.1 | 37.9 | 91.0 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|--------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | -6. | 23. | 0. | 0. | -8. | 4. |
| (G'S) @ (MS) | 0.0 | 120.7 | 76.2 | 0.0 | 0.0 | 121.5 | 79.2 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | -17. | 5. | 0. | 0. | -1. | 6. |
| (G'S) @ | 0.0 | 94.8 | 123.7 | 0.0 | 0.0 | 150.8 | 100.8 |
| EX THORAX ACC: | 24. | -22. | 5. | -9. | 7. | -5. | 9. |
| (G'S) @ | 67.3 | 76.2 | 121.2 | 113.5 | 127.1 | 83.4 | 120.9 |
| GSI= | 31 | | | | | | |
| EX PELVIS ACC: | 0. | -15. | 5. | 0. | 0. | -3. | 12. |
| (G'S) @ | 0.0 | 94.2 | 125.1 | 0.0 | 0.0 | 71.5 | 98.8 |
| | | | | | | | |
| HEAD ANG ACC : | 1420. | -703. | 50. | -1209. | 1251. | -540. | 684. |
| (RAD/S/S) @ | 114.7 | 143.3 | 122.6 | 114.7 | 67.6 | 173.5 | 123.5 |
| HEAD ANG VEL : | 34.3 | -24.2 | 5.4 | -1.1 | 33.3 | -0.1 | 19.8 |
| (RAD/S) @ | 85.4 | 173.5 | 84.9 | 33.5 | 86.0 | 30.5 | 147.0 |
| EULER ANGLES : | | | 114.9 | | 68.1 | | 94.6 |
| (DEGREES) @ | | | 163.5 | | 113.9 | | 137.2 |
| | | | | | | | |
| HEAD C.G. ACC: | 37. | -26. | 7. | -5. | 5. | -35. | -4. |
| (G'S) @ | 92.3 | 116.3 | 173.5 | 173.5 | 123.7 | 91.4 | 119.6 |
| HEAD C.G. HIC= | 257 | | | | | | |
| HEAD C.G. VEL: | 683. | -603. | 9. | -190. | 36. | -125. | 200. |
| (IN/S) @ | 185.3 | 173.5 | 43.5 | 173.5 | 93.8 | 98.8 | 155.9 |
| HEAD C.G. DIS: | | | -10.3 | | 1.1 | | -2.1 |
| (IN) @ | | | 117.5 | | 114.4 | | 117.3 |

FILE: 370

76B009-1: DUM-L



SLED DECELERATION

LEFT SIDE

RIGHT SIDE

UPPER
SHOULDER

LAP BELT
(LBS)

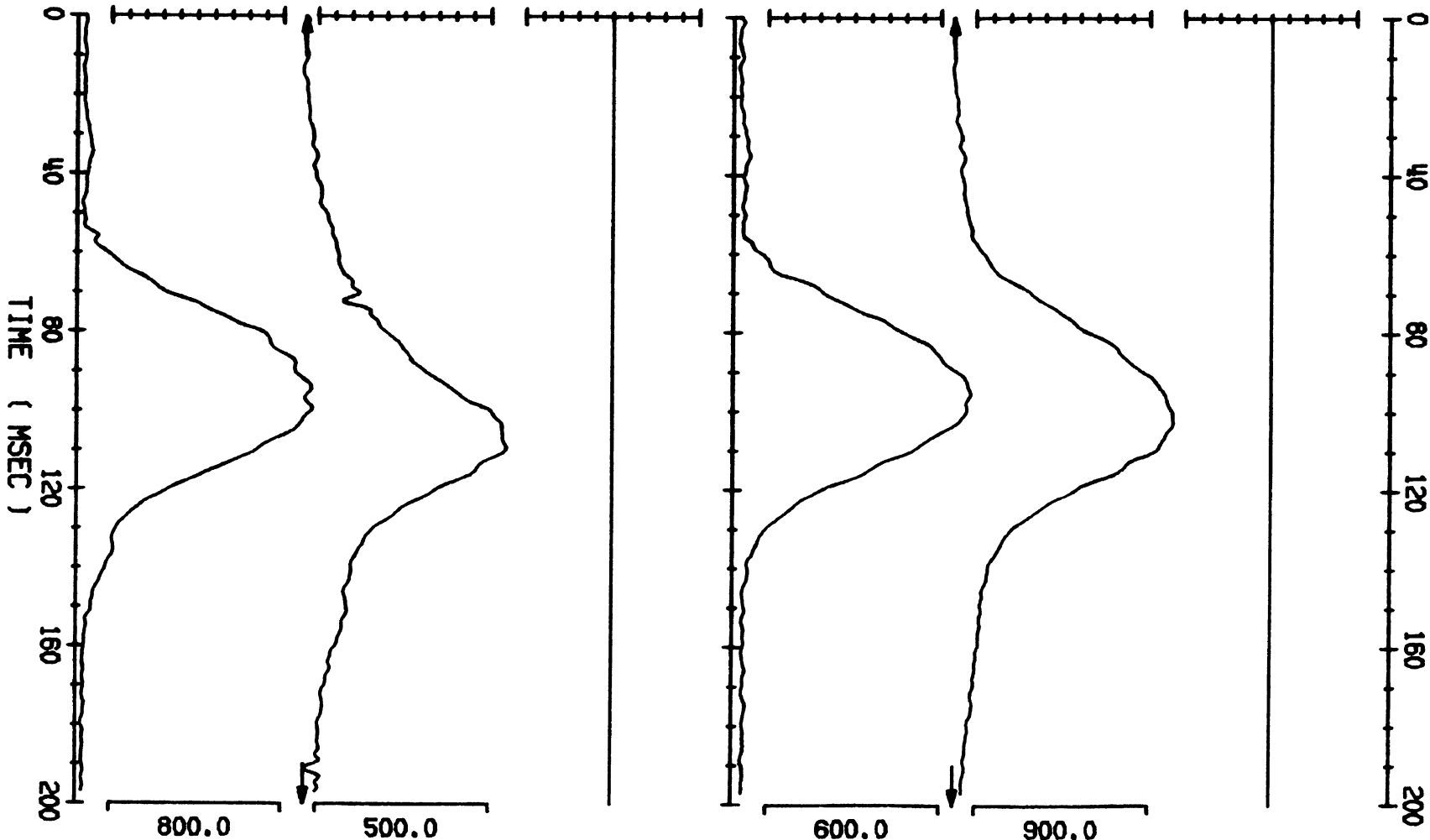
FEMUR

LOWER
SHOULDER

LAP BELT
(LBS)

FEMUR

MEASURED FORCES

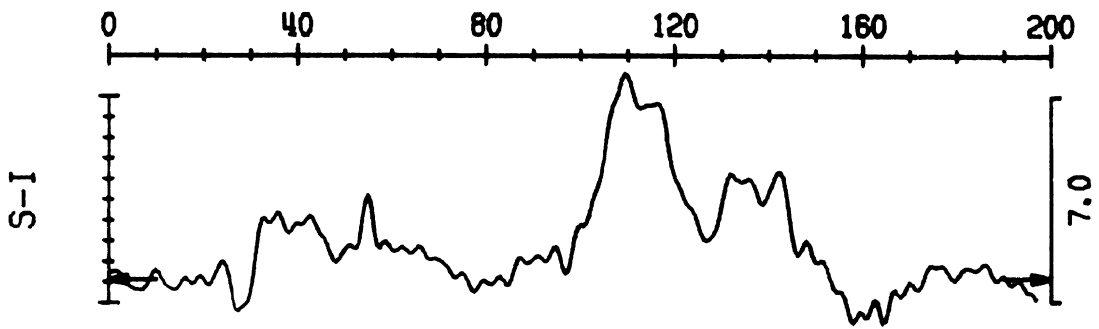


FILE: 381

76B009-2: DUM-L

PELVIS

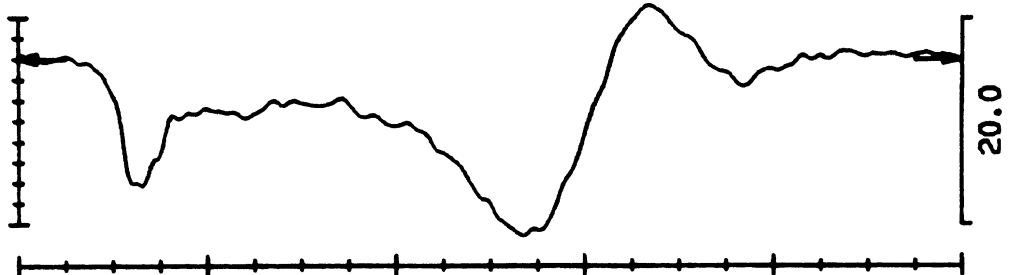
INTERNAL



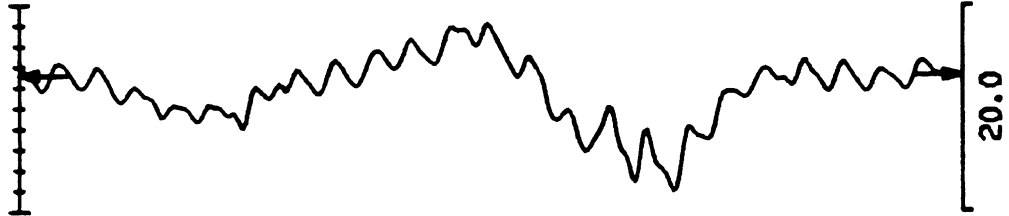
L-R
(G'S)



A-P



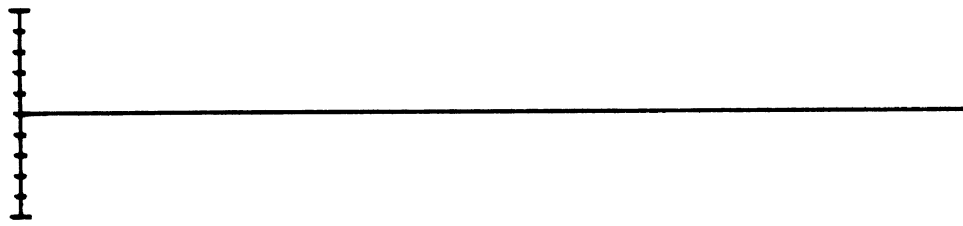
S-I



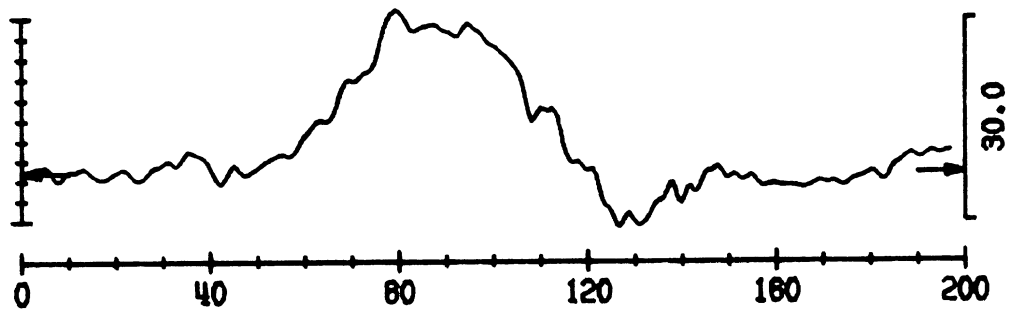
THORAX

INTERNAL

L-R
(G'S)

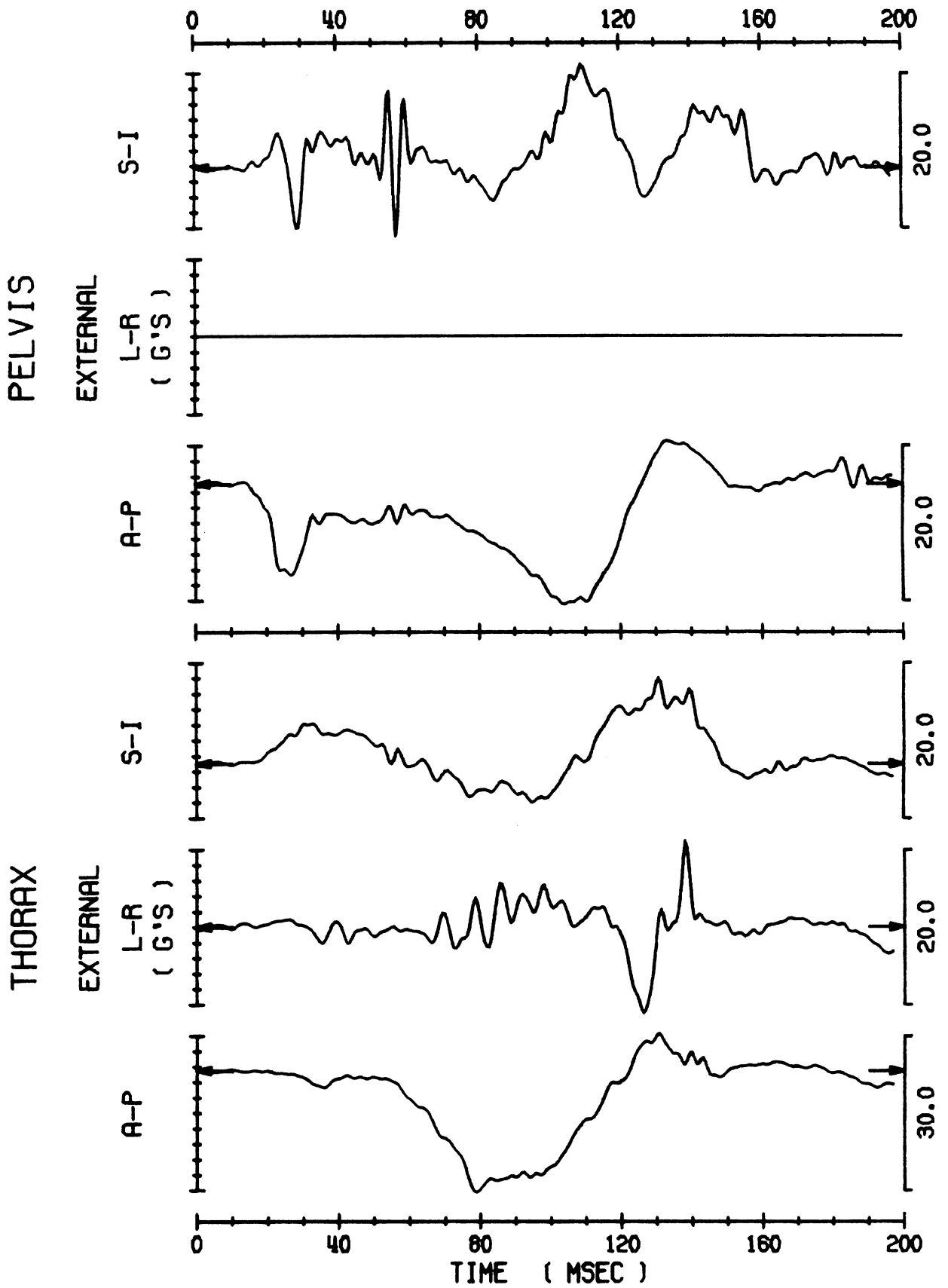


A-P



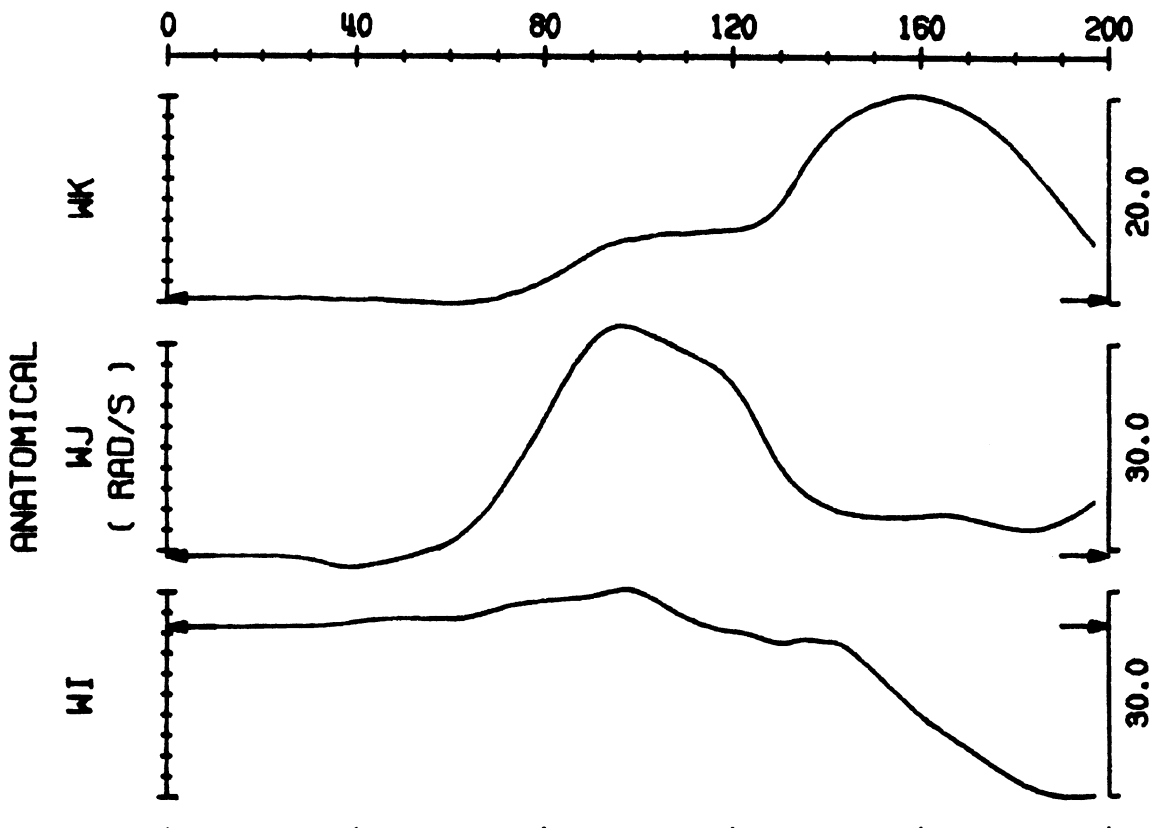
TIME (MSEC)

MEASURED ACCELERATIONS

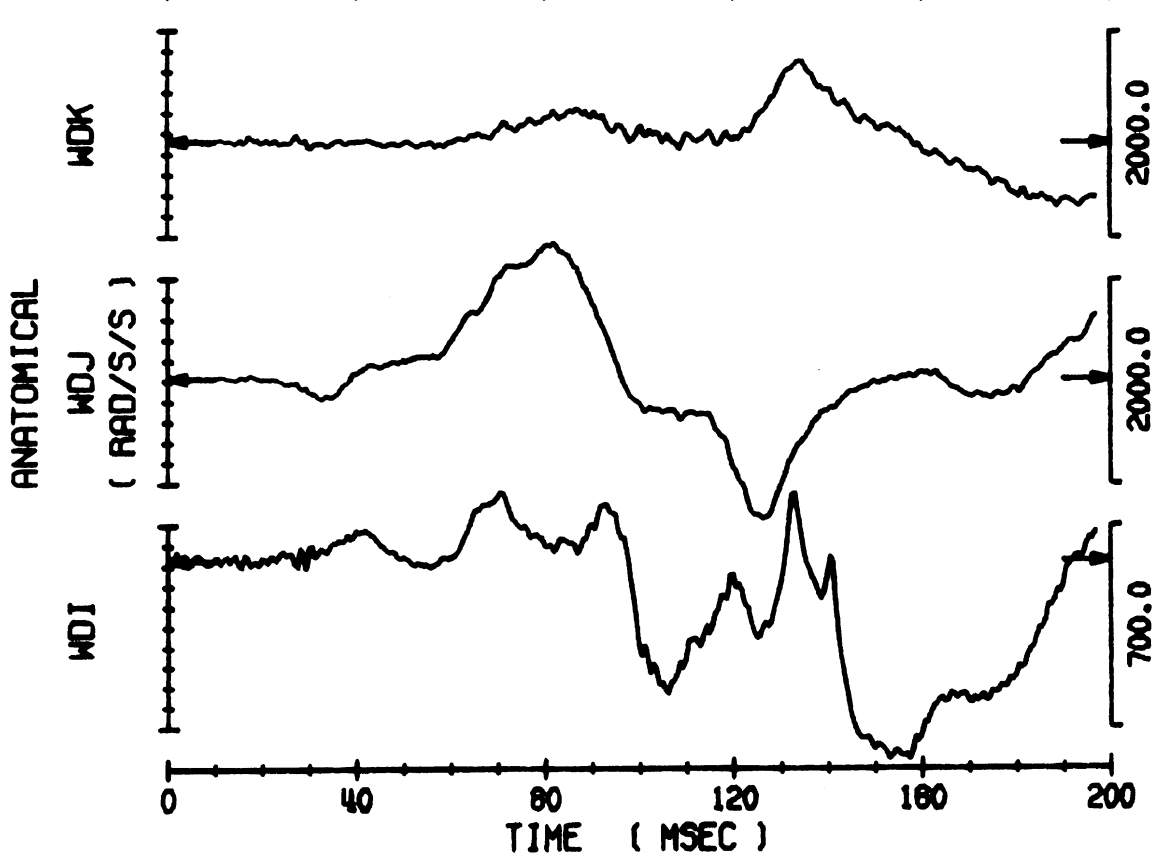


MEASURED ACCELERATIONS

ANG VELOCITIES



ANG ACCELERATIONS



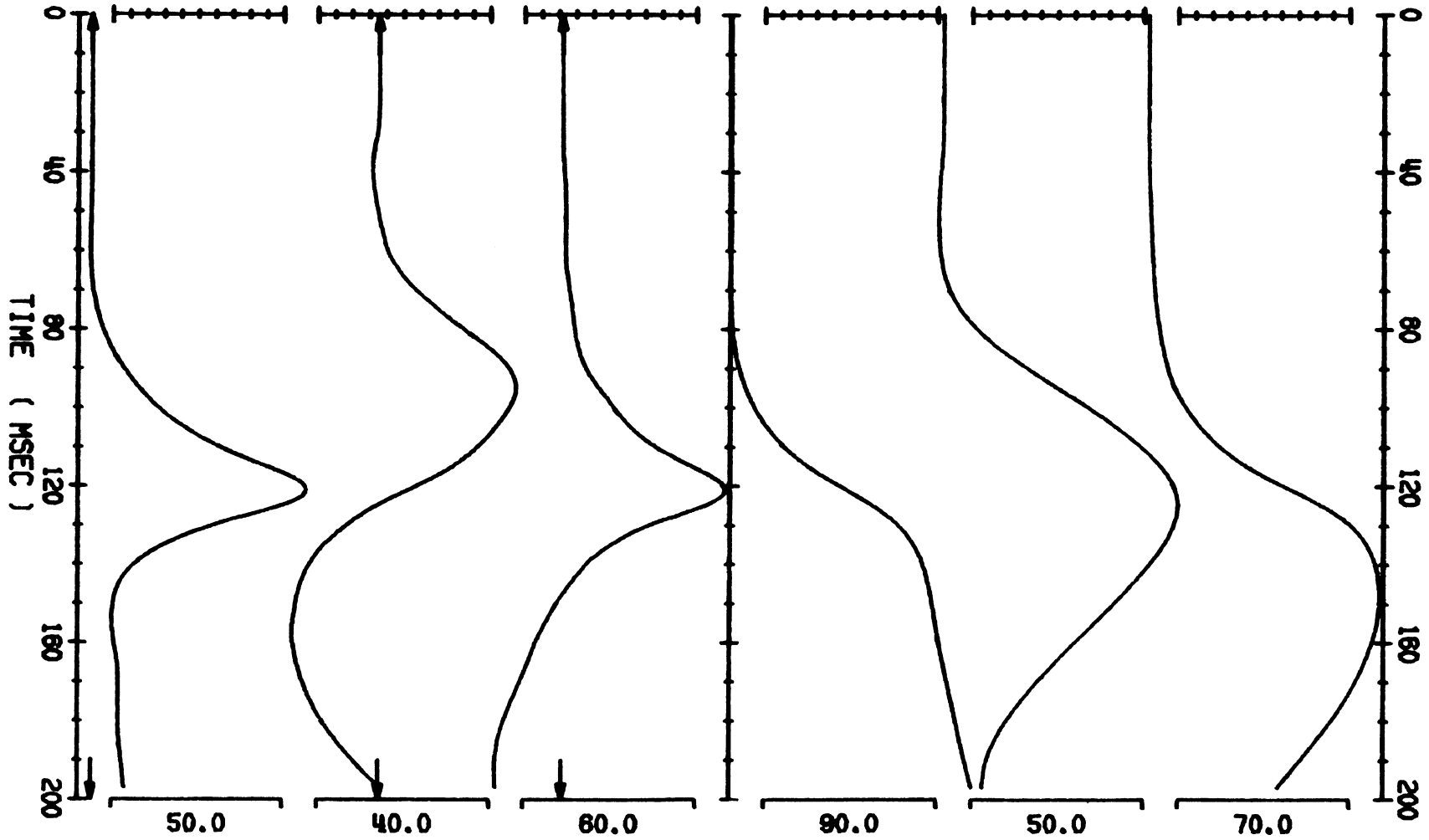
3-D ANGULAR MOTION

EULER RATES

EULER ANGLES

INERTIAL
YAW
PITCH (RAD/S)
ROLL

INERTIAL
YAW
PITCH (DEG)
ROLL



FILE: 375

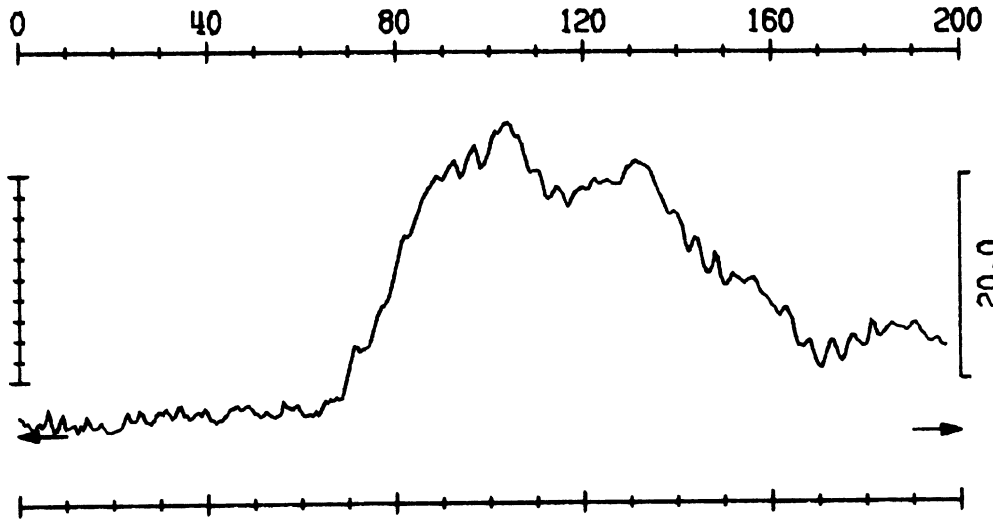
76B009-1: DUM-L

3-D ROTATIONS

C-305

RESULTANT

GSI = 221
HIC = 193



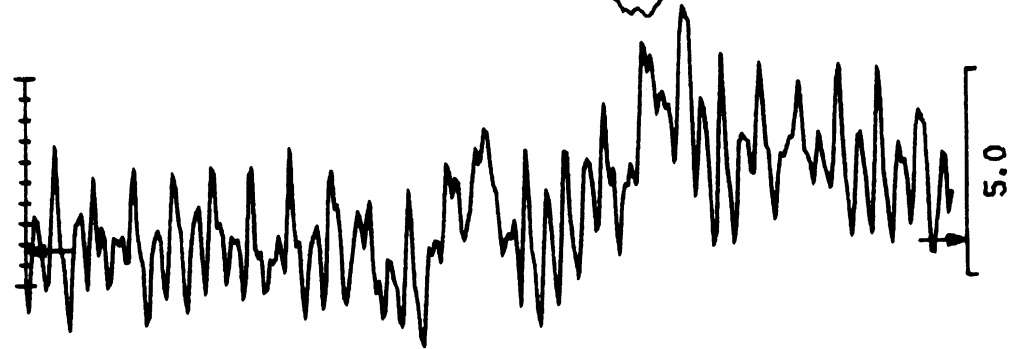
HEAD STD TRIAX (ACT)

S-I



READINGS

L-R
(G'S)



A-P

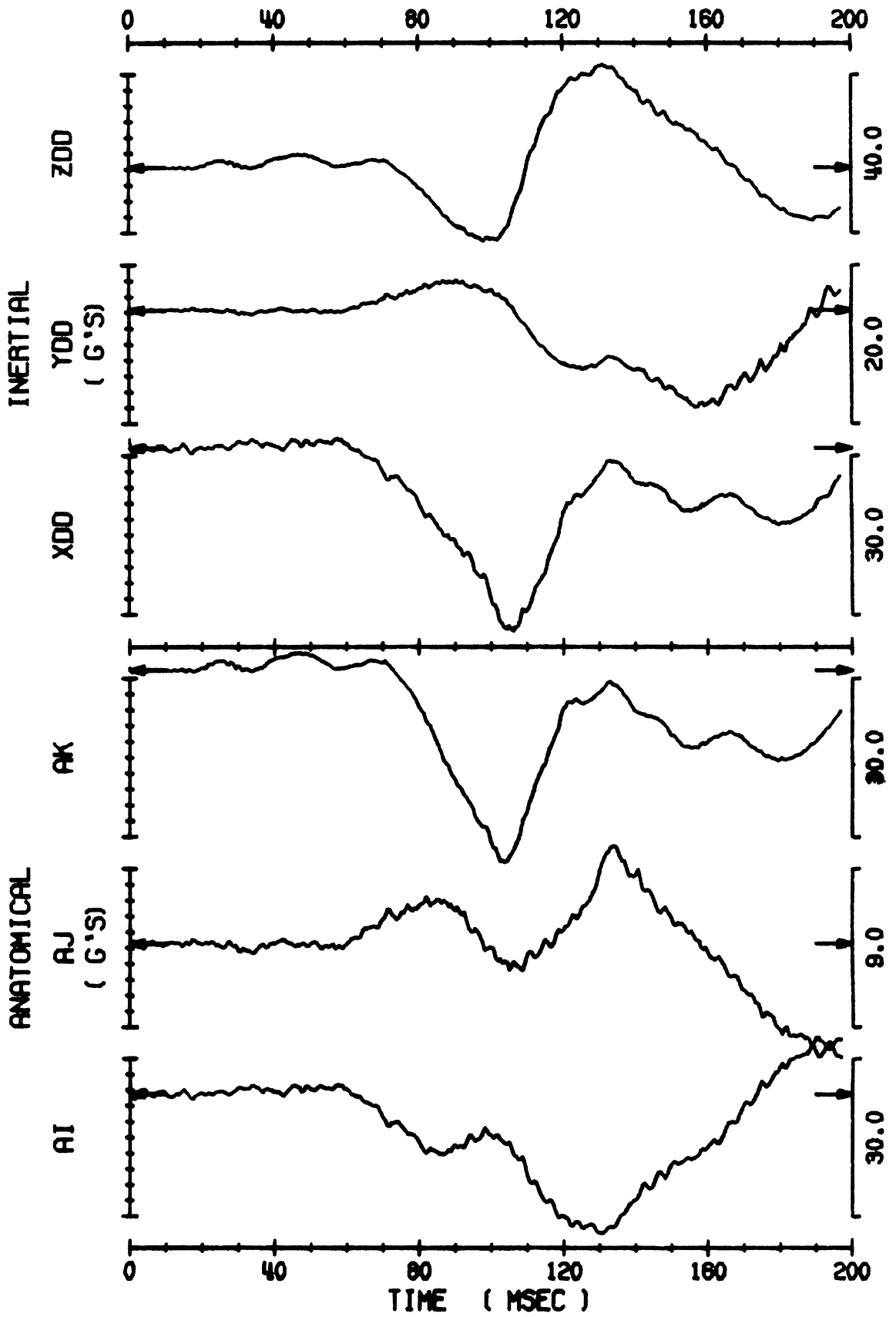


0 40 80 120 160 200
TIME (MSEC)

MEASURED ACCELERATIONS

GSI= 301, HIC= 257

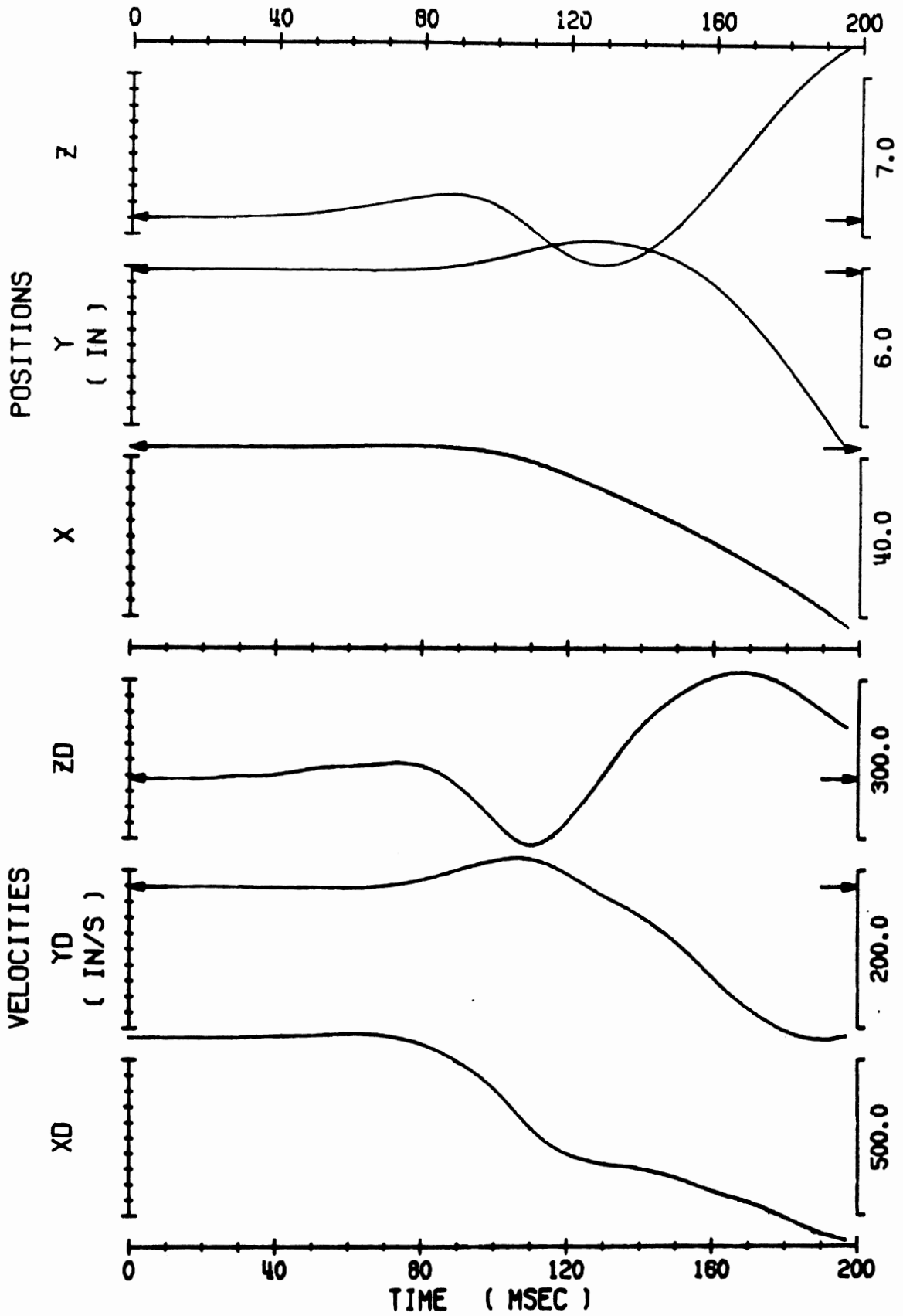
ACC OF: HEAD STD TRIAX



3-D ACCELERATIONS

HEAD STD TRIAX

INERTIAL MOTION OF:



3-D TRANSLATIONS

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: 76B010
=====

SUBJECT: DUM-M

10.5 G-LEVEL
108. MS LONG
23.1 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1165. | 868. | 939. | 1486. | 0. | 0. |
| (LBS) @ (MS) | 84.5 | 82.0 | 95.7 | 90.1 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | -4. | 26. | 0. | 0. | -24. | 5. |
| (G'S) @ (MS) | 0.0 | 112.7 | 72.9 | 0.0 | 0.0 | 117.2 | 80.2 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | -25. | 3. | 0. | 0. | -3. | 13. |
| (G'S) @ | 0.0 | 94.9 | 122.2 | 0.0 | 0.0 | 144.8 | 99.3 |
| EX THORAX ACC: | 27. | -25. | 2. | -10. | 7. | -4. | 18. |
| (G'S) @ | 63.2 | 73.1 | 113.5 | 109.2 | 116.8 | 71.1 | 113.0 |
| GSI= | 133 | | | | | | |
| EX PELVIS ACC: | 0. | -23. | 4. | 0. | 0. | -3. | 22. |
| (G'S) @ | 0.0 | 94.3 | 122.3 | 0.0 | 0.0 | 68.9 | 97.7 |

.....

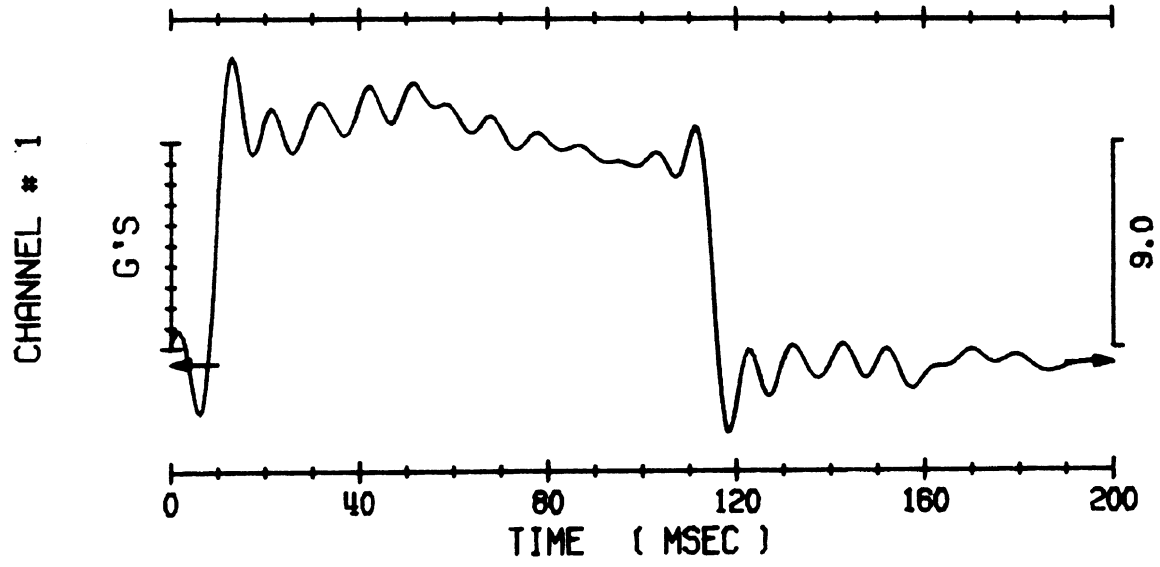
| | | | | | | | |
|----------------|-------|-------|-------|--------|-------|-------|-------|
| HEAD ANG ACC : | 1583. | -715. | 74. | -1138. | 1522. | -573. | 695. |
| (RAD/S/S) @ | 66.4 | 137.4 | 109.3 | 113.2 | 64.9 | 175.7 | 113.9 |
| HEAD ANG VEL : | 37.0 | -27.8 | 0.4 | -1.4 | 36.4 | -0.4 | 14.4 |
| (RAD/S) @ | 82.6 | 180.2 | 37.0 | 37.0 | 83.7 | 37.0 | 134.8 |
| EULER ANGLES : | | | 150.7 | | 76.3 | | 120.3 |
| (DEGREES) @ | | | 167.0 | | 109.9 | | 134.3 |

.....

| | | | | | | | |
|----------------|-------|-------|-------|-------|-------|-------|-------|
| HEAD C.G. ACC: | 40. | -29. | 7. | -6. | 4. | -38. | -6. |
| (G'S) @ | 89.5 | 113.0 | 177.0 | 176.0 | 115.7 | 87.4 | 114.3 |
| HEAD C.G. HIC= | 369 | | | | | | |
| HEAD C.G. VEL: | 758. | -623. | 14. | -312. | 24. | -149. | 275. |
| (IN/S) @ | 188.8 | 177.0 | 47.4 | 177.0 | 84.9 | 95.7 | 159.8 |
| HEAD C.G. DIS: | | | -11.3 | | 0.5 | | -2.9 |
| (IN) @ | | | 114.5 | | 114.5 | | 115.4 |

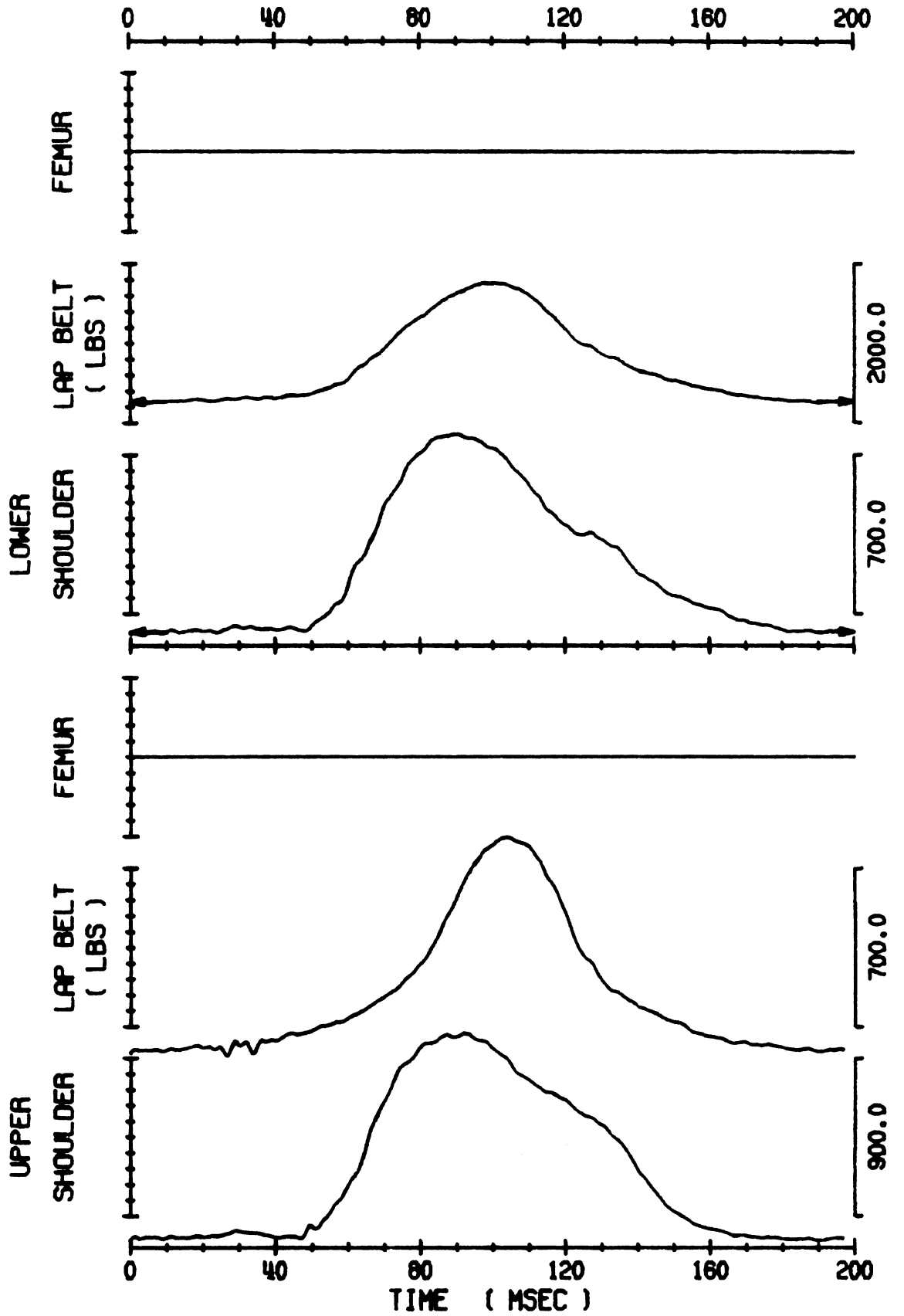
FILE: 382

76B010-1: DUM-M



SLED DECELERATION

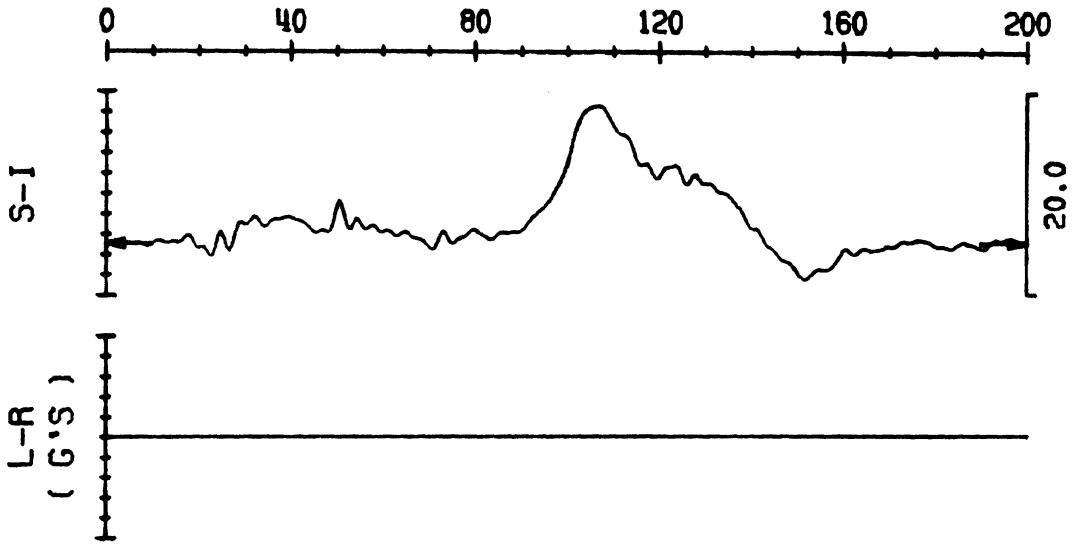
RIGHT SIDE



MEASURED FORCES

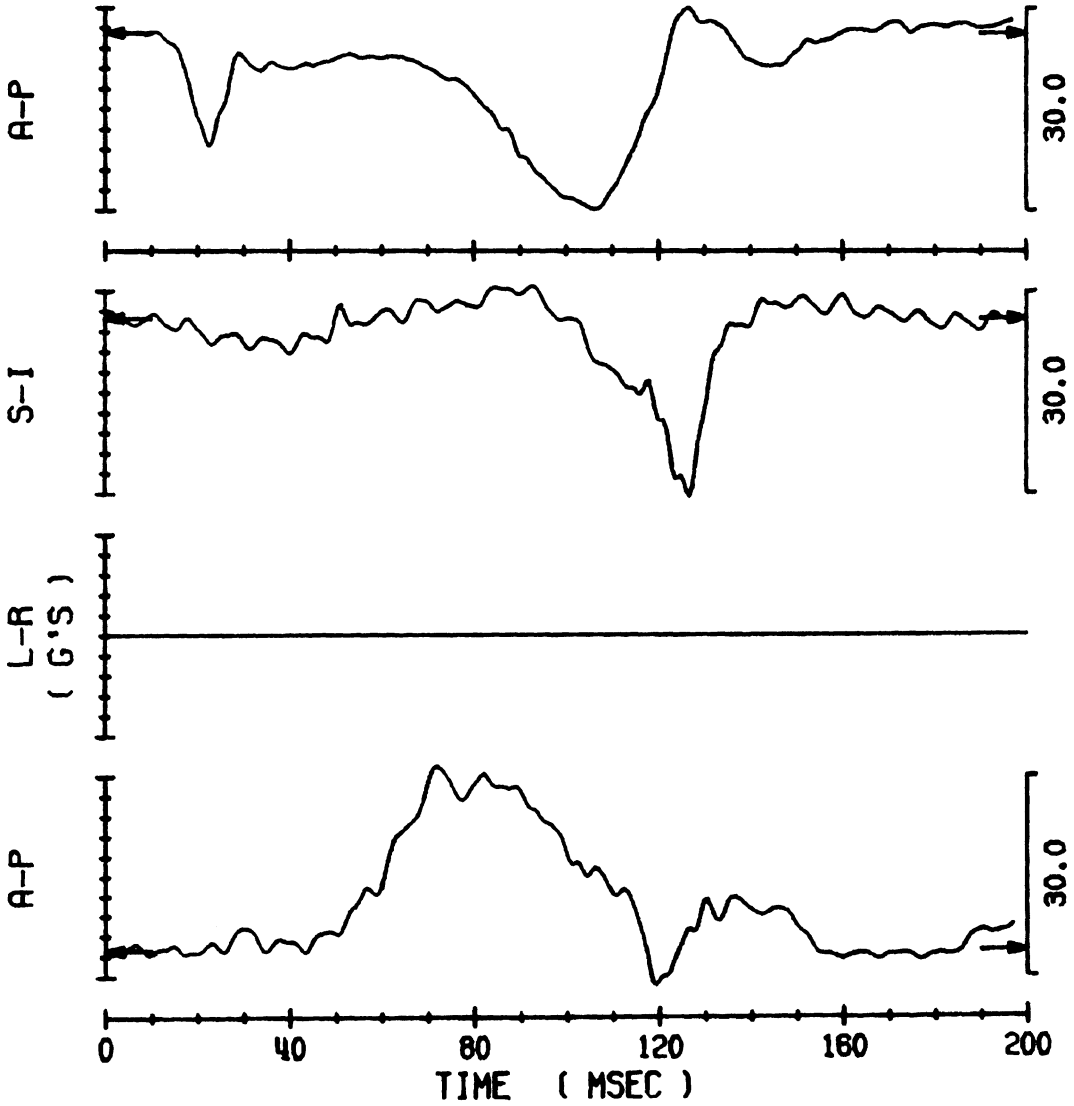
PELVIS

INTERNAL

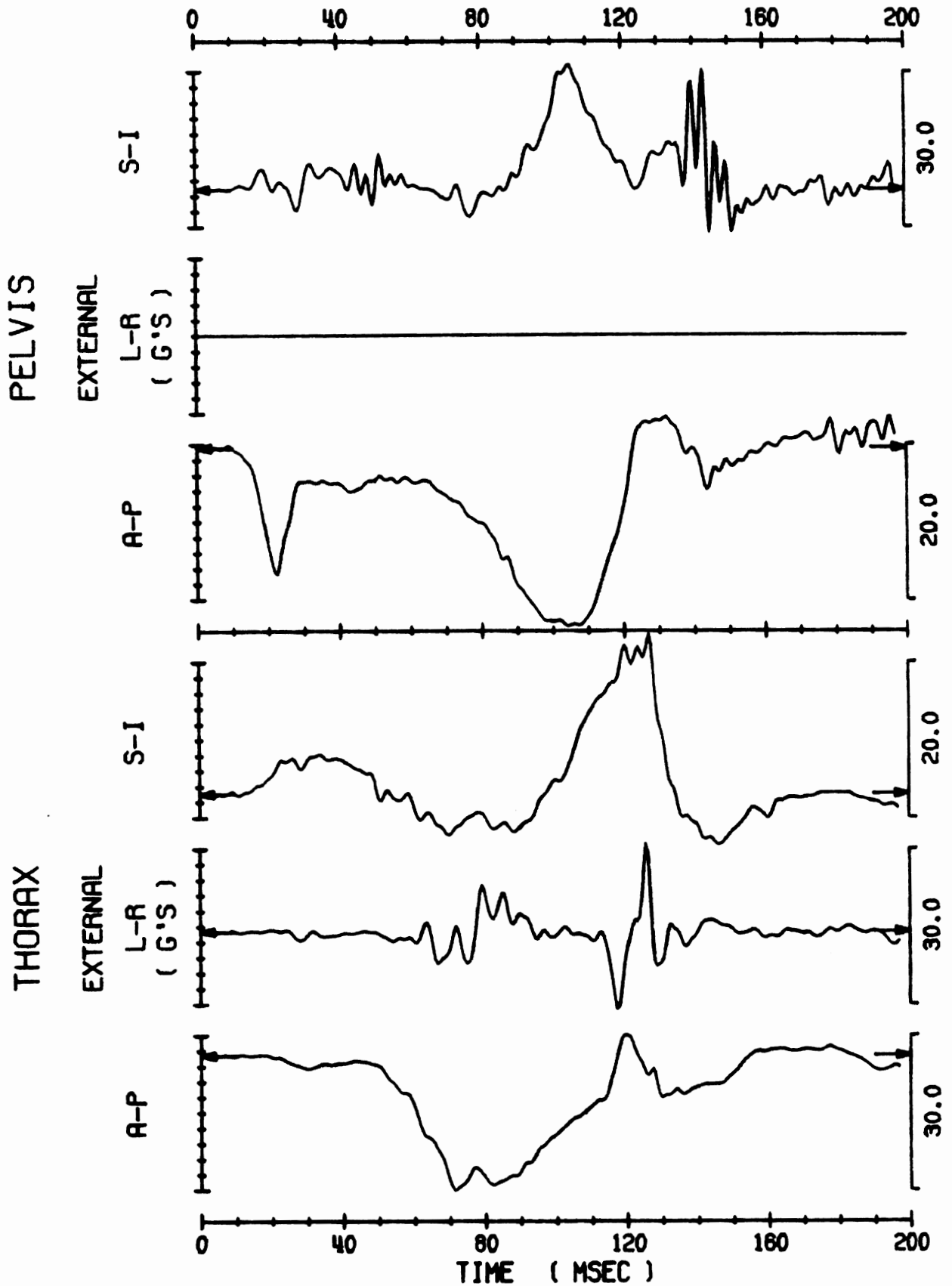


THORAX

INTERNAL

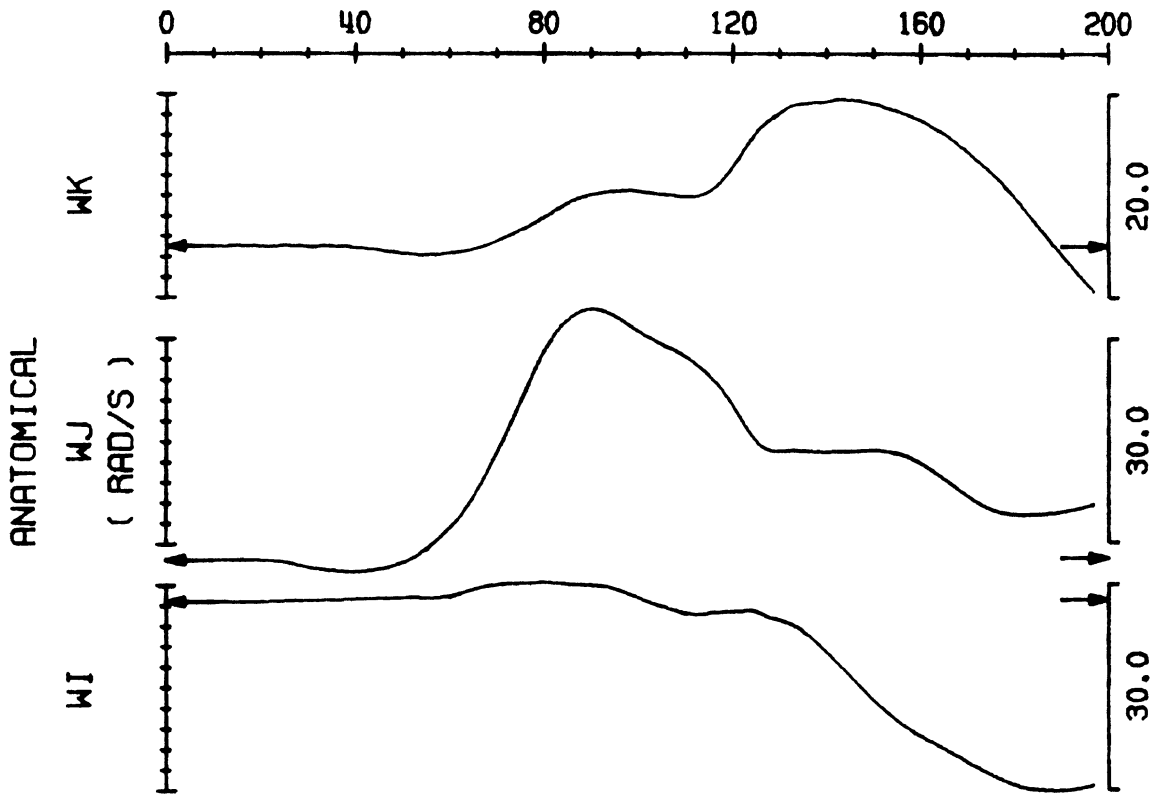


MEASURED ACCELERATIONS

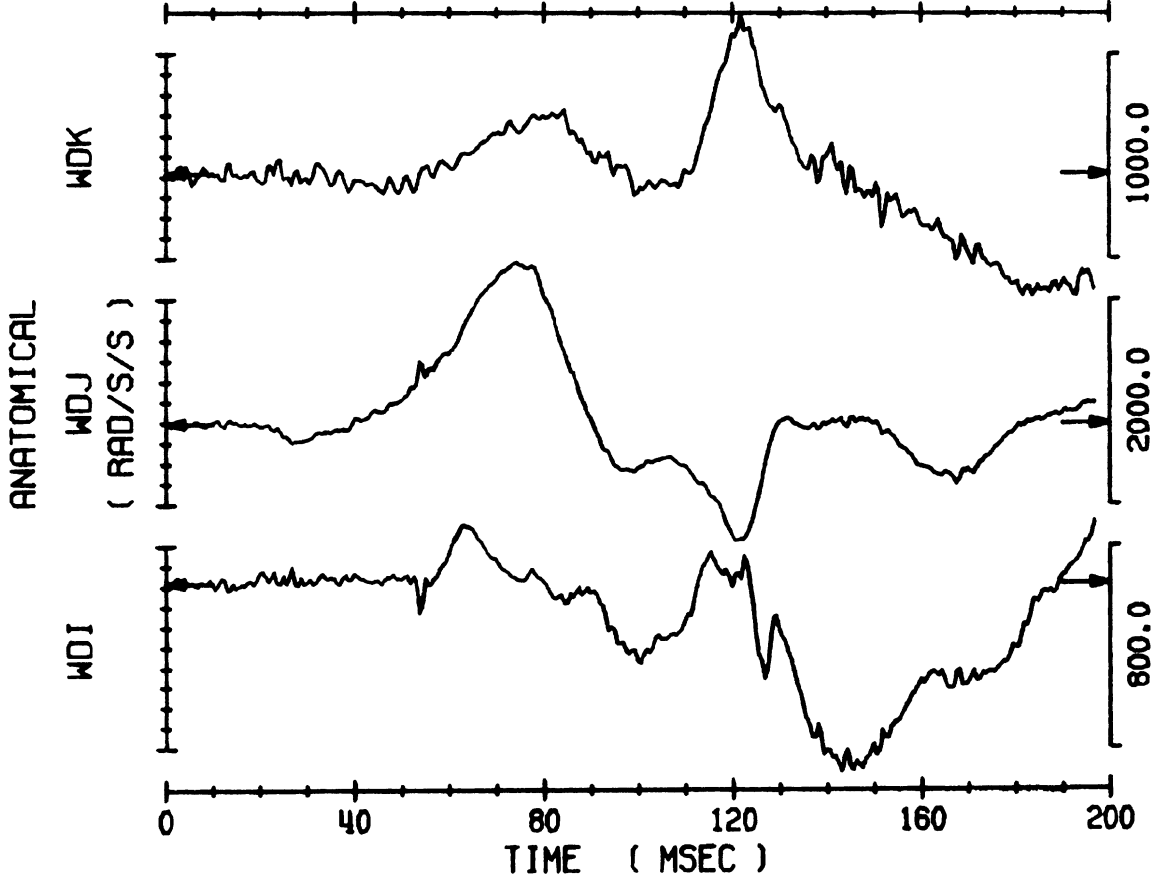


MEASURED ACCELERATIONS

ANG VELOCITIES



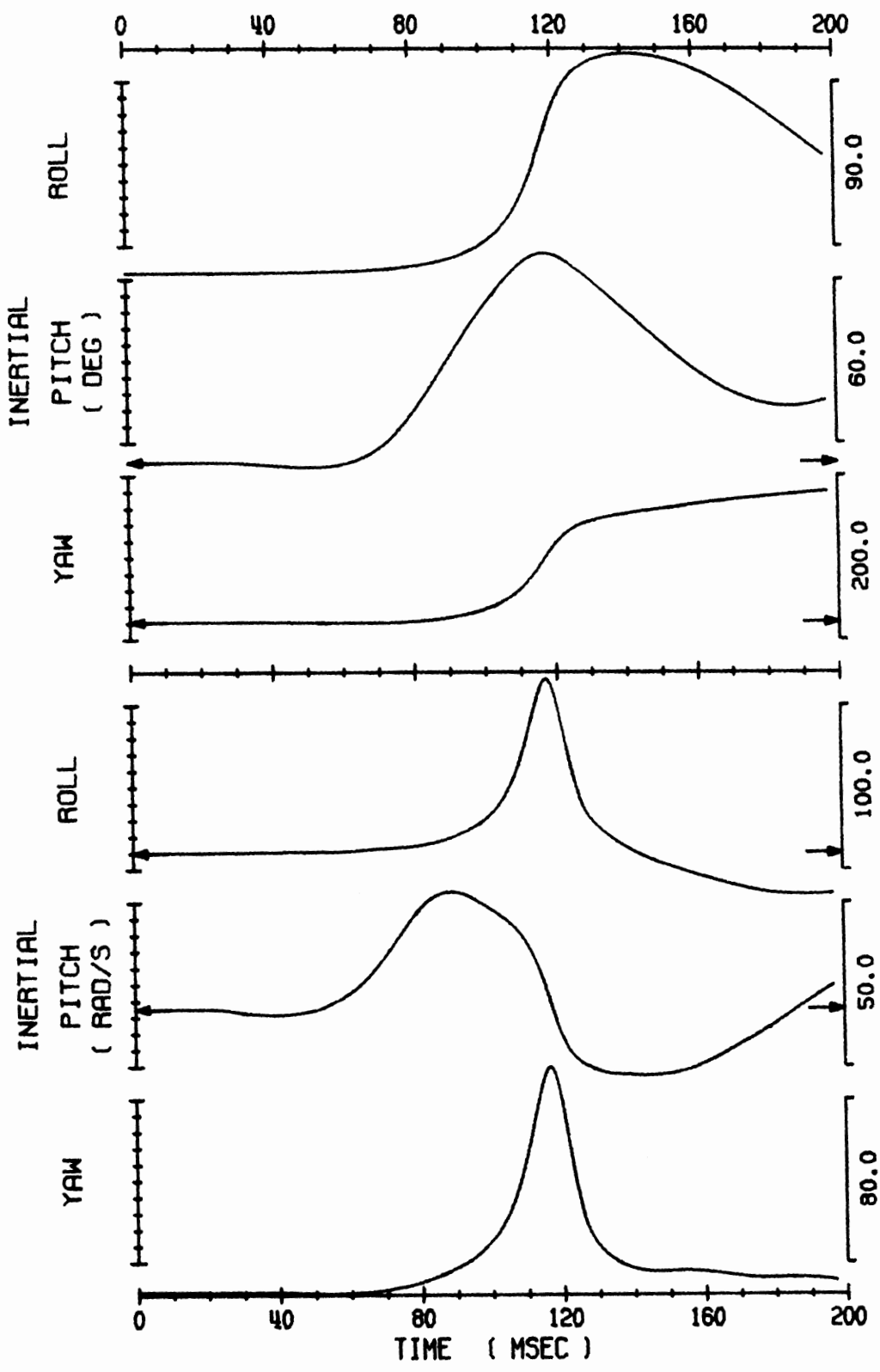
ANG ACCELERATIONS



3-D ANGULAR MOTION

EULER ANGLES

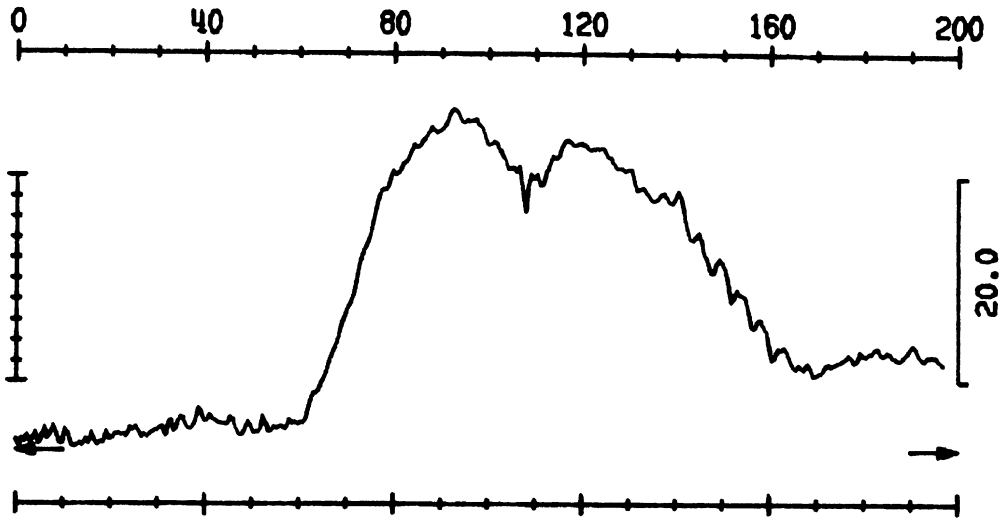
EULER RATES



3-D ROTATIONS

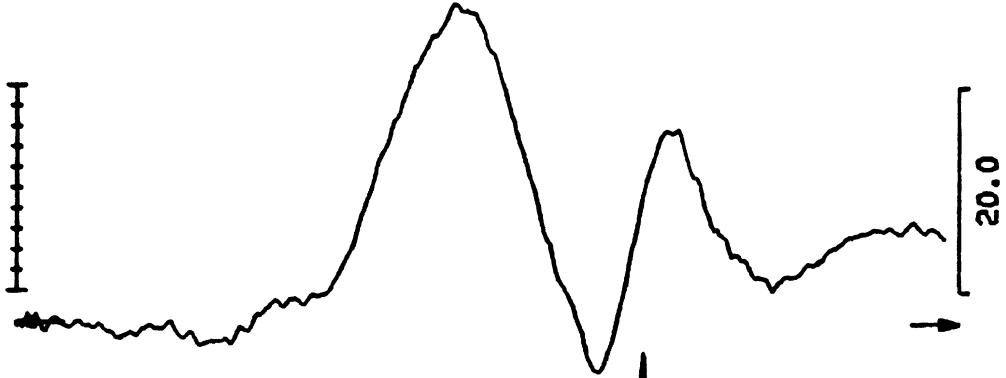
RESULTANT

GSI = 327
HIC = 295

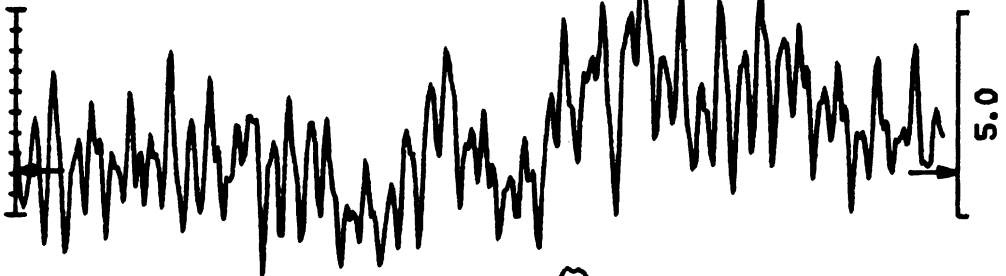


HEAD STD TRIAX (ACT)

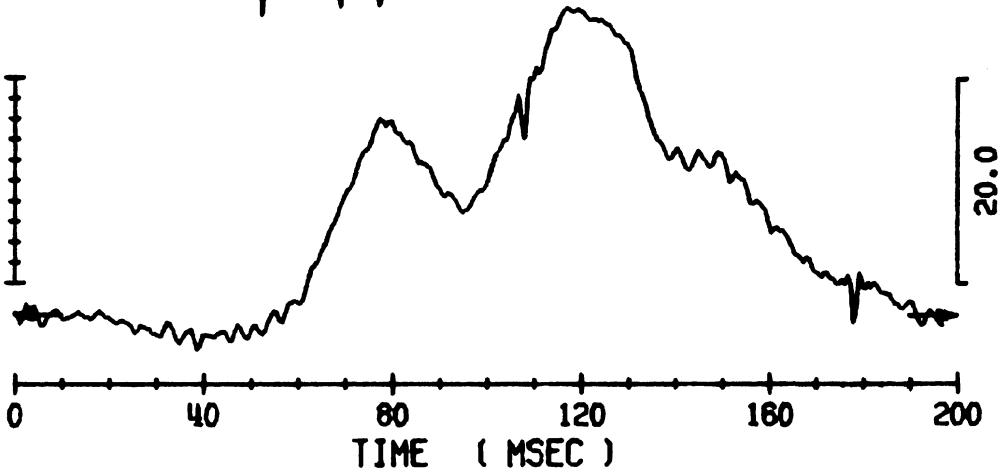
S-I



READINGS
L-R
(G'S)



A-P

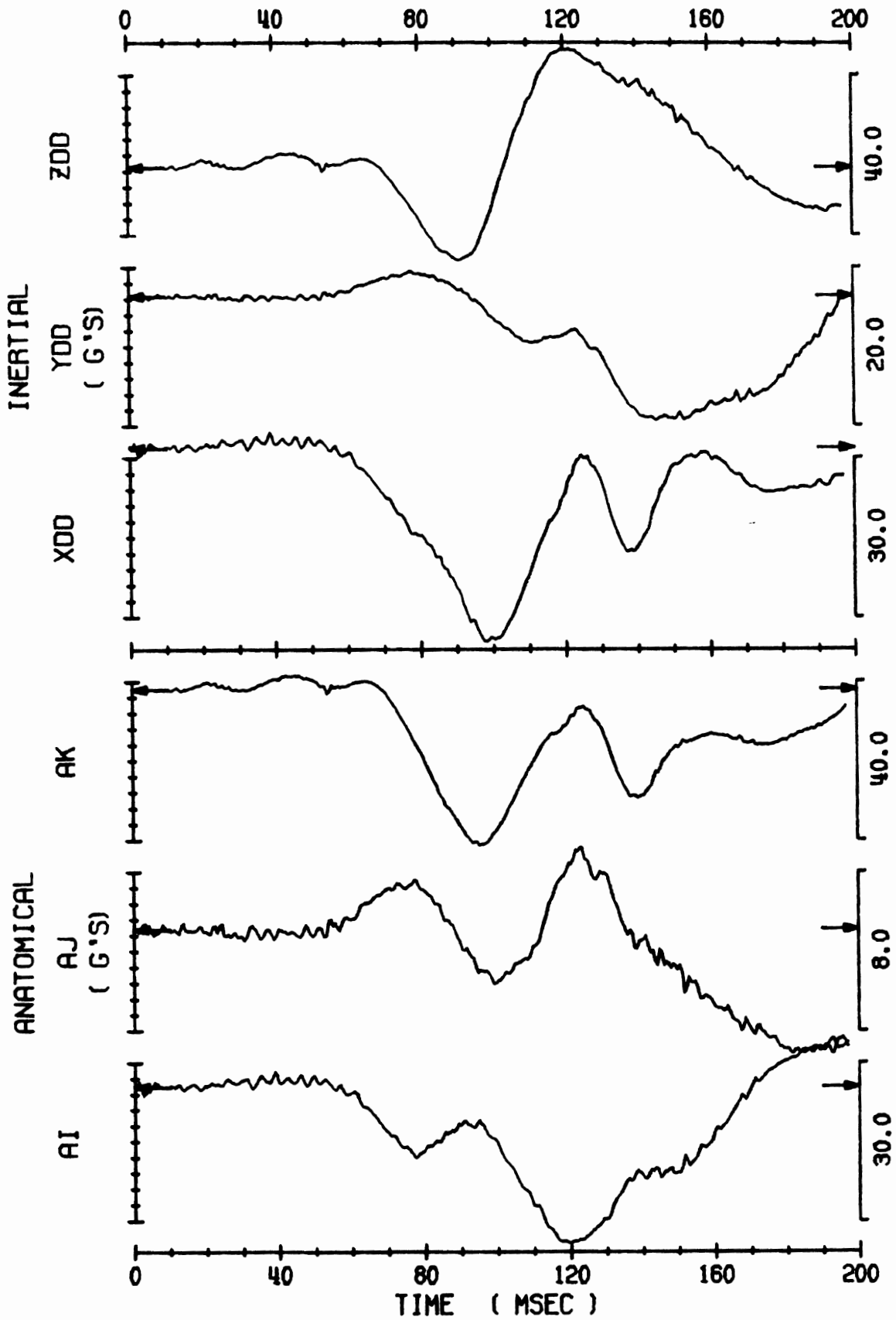


MEASURED ACCELERATIONS

ACC OF: HEAD STD TRIAX GSI= 430, HIC= 369

FILE: 388

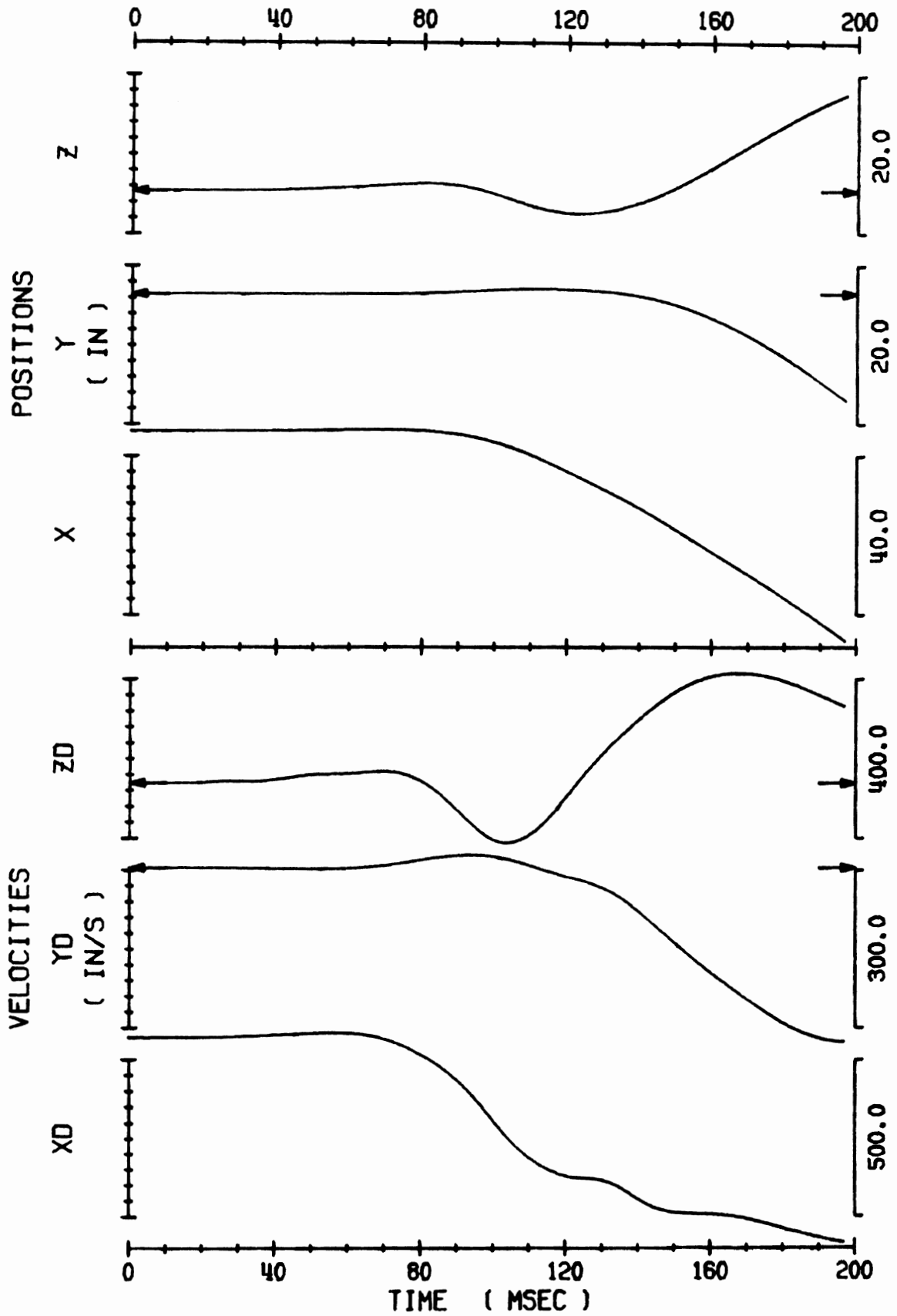
76B010-1: DUM-M



3-D ACCELERATIONS

HEAD STD TRIAX

INERTIAL MOTION OF:



3-D TRANSLATIONS

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: 76B011
=====

SUBJECT: DUM-M

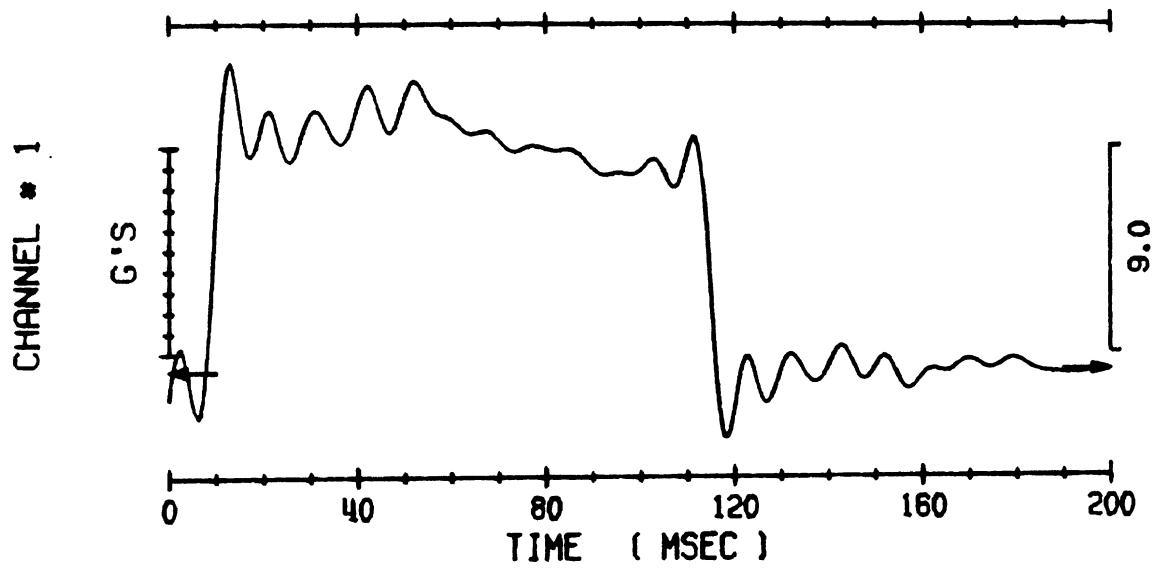
10.6 G-LEVEL
103. MS LONG
23.3 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1100. | 803. | 875. | 1468. | 0. | 0. |
| (LBS) @ (MS) | 82.7 | 80.2 | 96.4 | 93.9 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | -1. | 24. | 0. | 0. | -22. | 3. |
| (G'S) @ (MS) | 0.0 | 111.2 | 69.9 | 0.0 | 0.0 | 117.0 | 136.9 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | -25. | 3. | 0. | 0. | -3. | 12. |
| (G'S) @ | 0.0 | 95.5 | 121.0 | 0.0 | 0.0 | 144.0 | 96.9 |
| EX THORAX ACC: | 24. | -23. | 3. | -6. | 6. | -5. | 15. |
| (G'S) @ | 62.0 | 71.4 | 111.0 | 122.6 | 116.1 | 137.1 | 109.8 |
| GSI= | 114 | | | | | | |
| EX PELVIS ACC: | 0. | -22. | 2. | 0. | 0. | -3. | 21. |
| (G'S) @ | 0.0 | 94.7 | 125.1 | 0.0 | 0.0 | 146.9 | 95.4 |
| | | | | | | | |
| HEAD ANG ACC : | 1501. | -665. | 102. | -964. | 1480. | -293. | 780. |
| (RAD/S/S) @ | 63.3 | 125.0 | 106.9 | 111.5 | 63.1 | 147.0 | 113.6 |
| HEAD ANG VEL : | 36.0 | -25.0 | 3.2 | 3.4 | 35.4 | 3.8 | 15.7 |
| (RAD/S) @ | 78.9 | 179.0 | 67.2 | 173.6 | 80.4 | 177.0 | 125.7 |
| EULER ANGLES : | | | 150.8 | | 74.0 | | 115.1 |
| (DEGREES) @ | | | 177.0 | | 108.5 | | 130.8 |
| | | | | | | | |
| HEAD C.G. ACC: | 39. | -30. | 8. | -3. | 4. | -38. | -7. |
| (G'S) @ | 87.6 | 111.0 | 177.0 | 175.8 | 113.3 | 86.2 | 111.6 |
| HEAD C.G. HIC= | 351 | | | | | | |
| HEAD C.G. VEL: | 797. | -651. | 11. | -337. | 22. | -142. | 256. |
| (IN/S) @ | 188.8 | 177.0 | 44.5 | 177.0 | 82.8 | 94.6 | 157.7 |
| HEAD C.G. DIS: | | | -10.8 | | 0.4 | | -2.6 |
| (IN) @ | | | 112.0 | | 112.0 | | 113.5 |

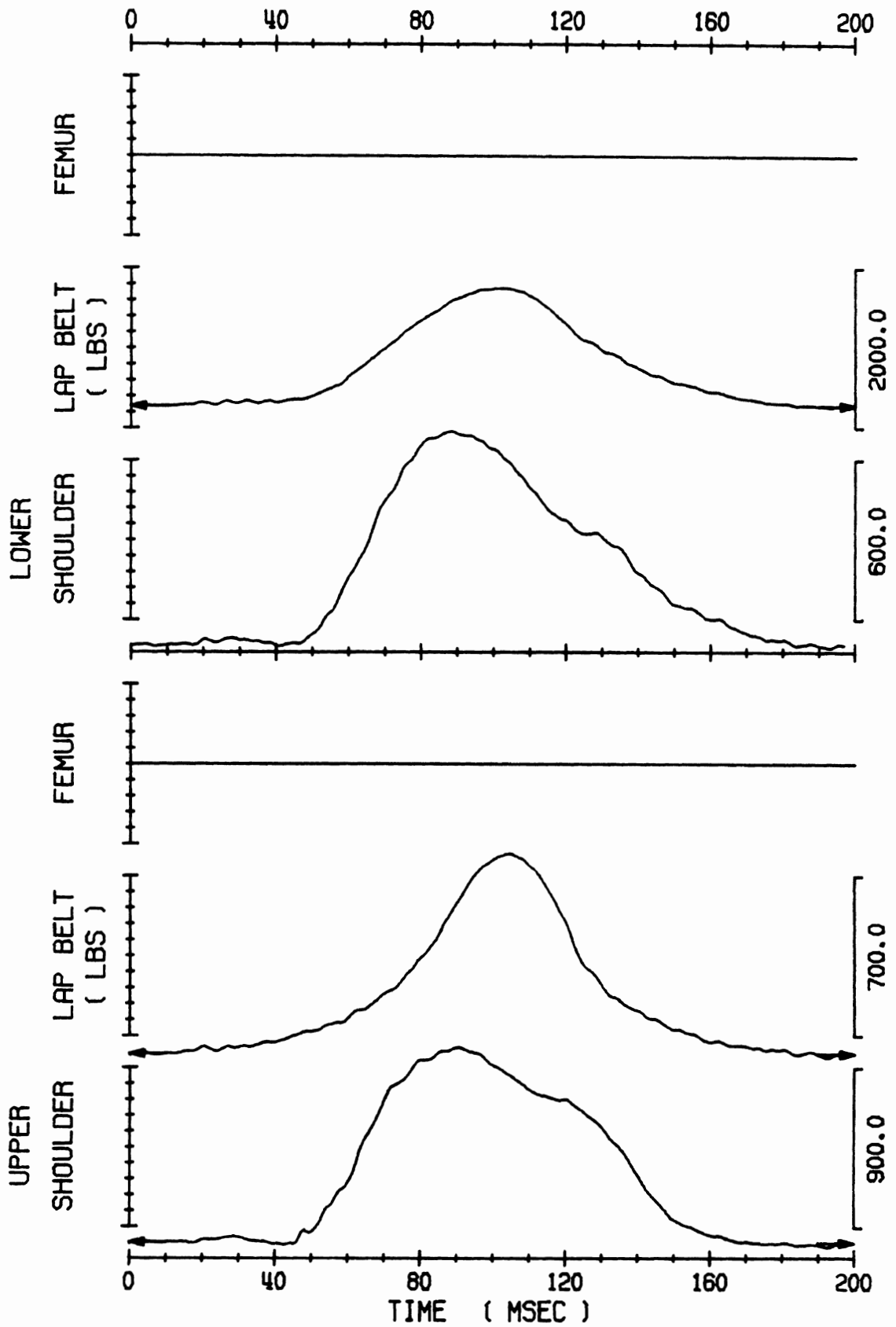
FILE: 394

76B011-1: DUM-M



SLED DECELERATION

RIGHT SIDE



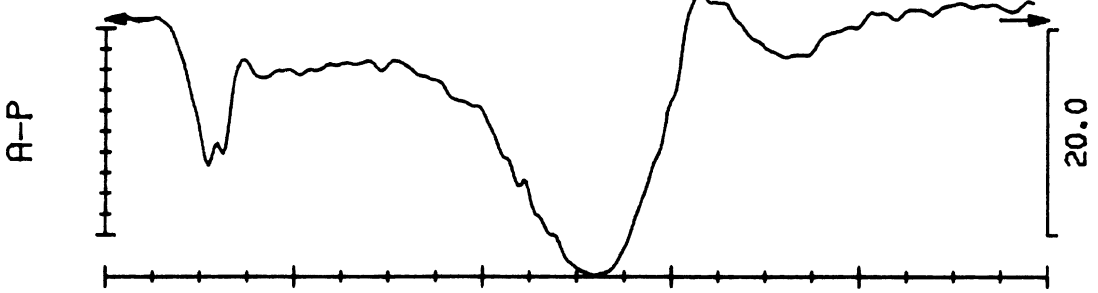
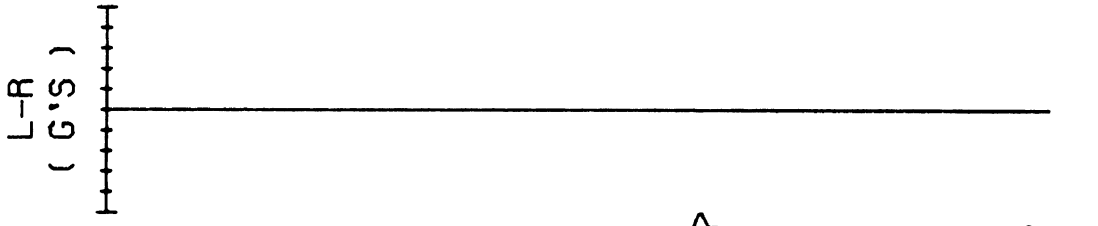
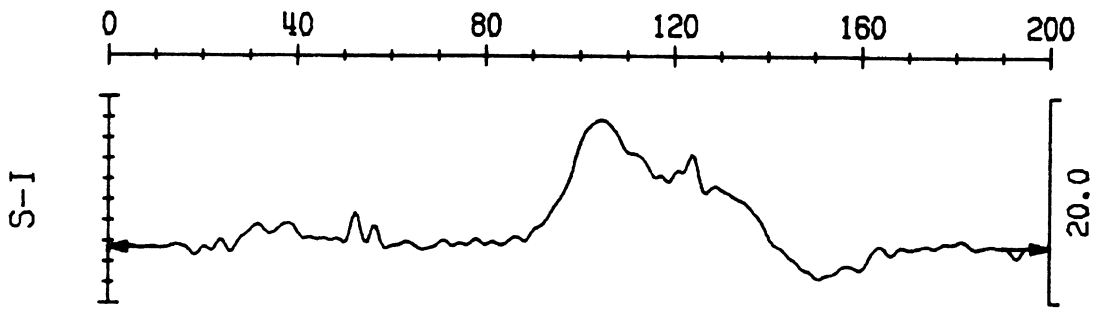
MEASURED FORCES

FILE: 403

76B011-2: DUM-M

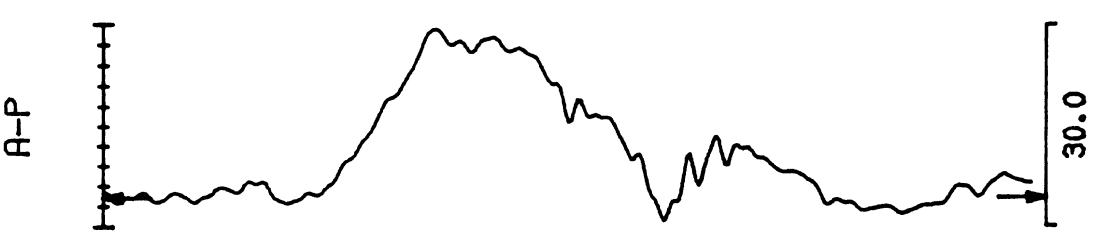
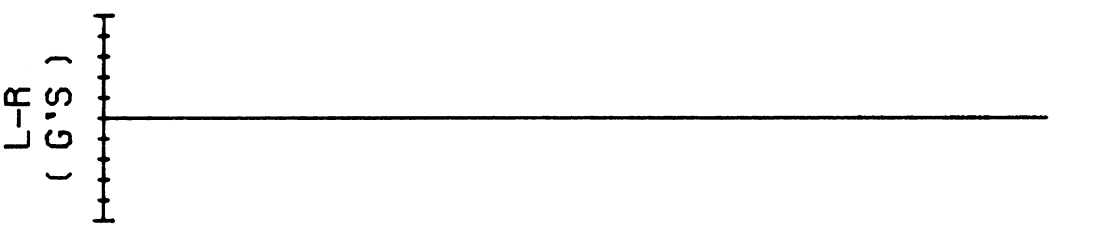
PELVIS

INTERNAL



THORAX

INTERNAL



0 40 80 120 160 200
TIME (MSEC)

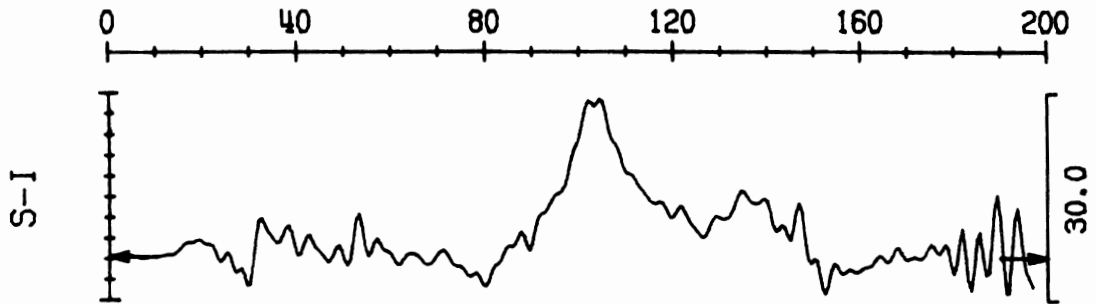
MEASURED ACCELERATIONS

FILE: 404

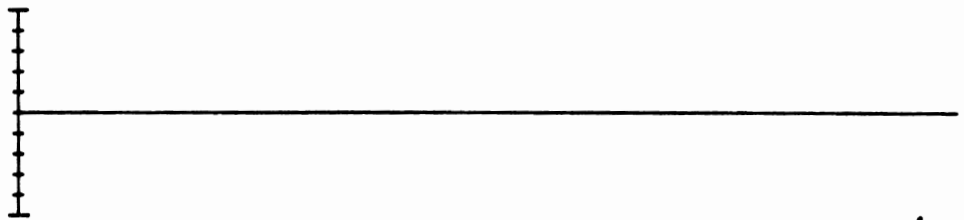
76B011-2: DUM-M

PELVIS

EXTERNAL



L-R
(G'S)



A-P



S-I



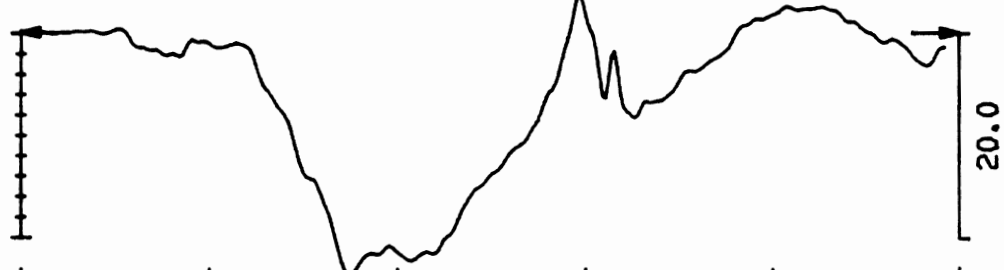
THORAX

EXTERNAL

L-R
(G'S)



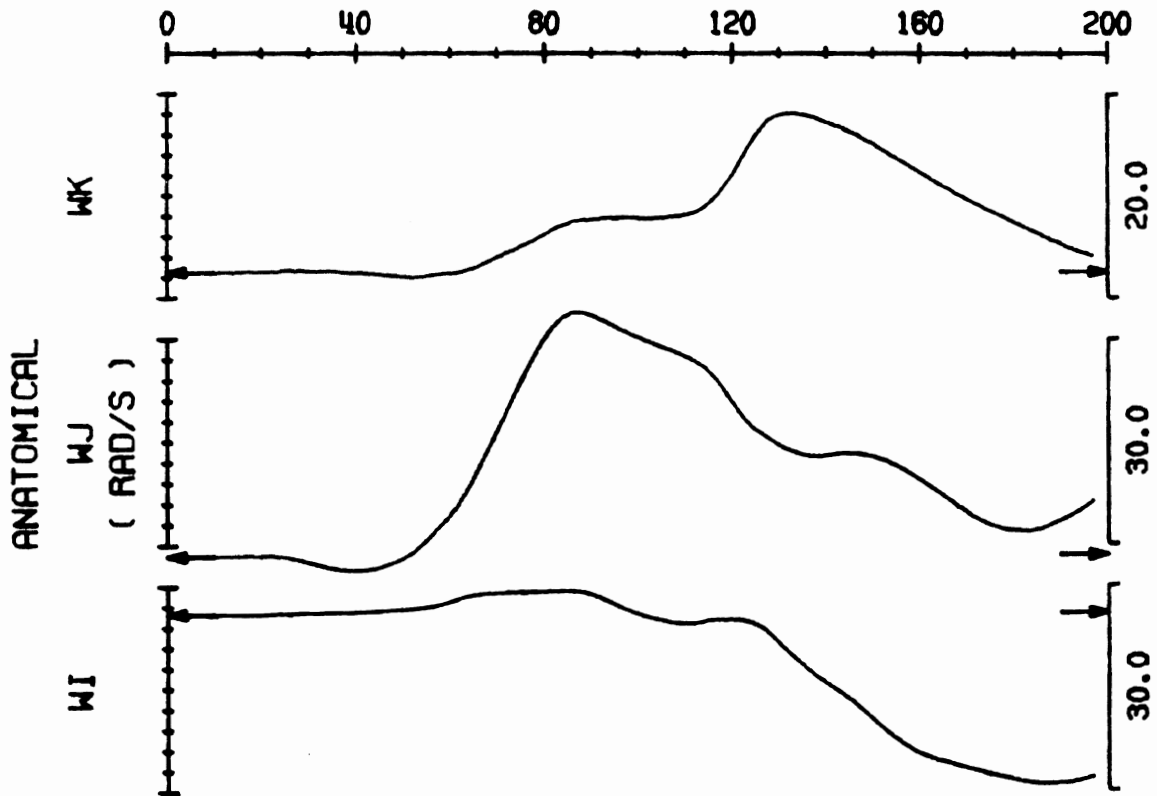
A-P



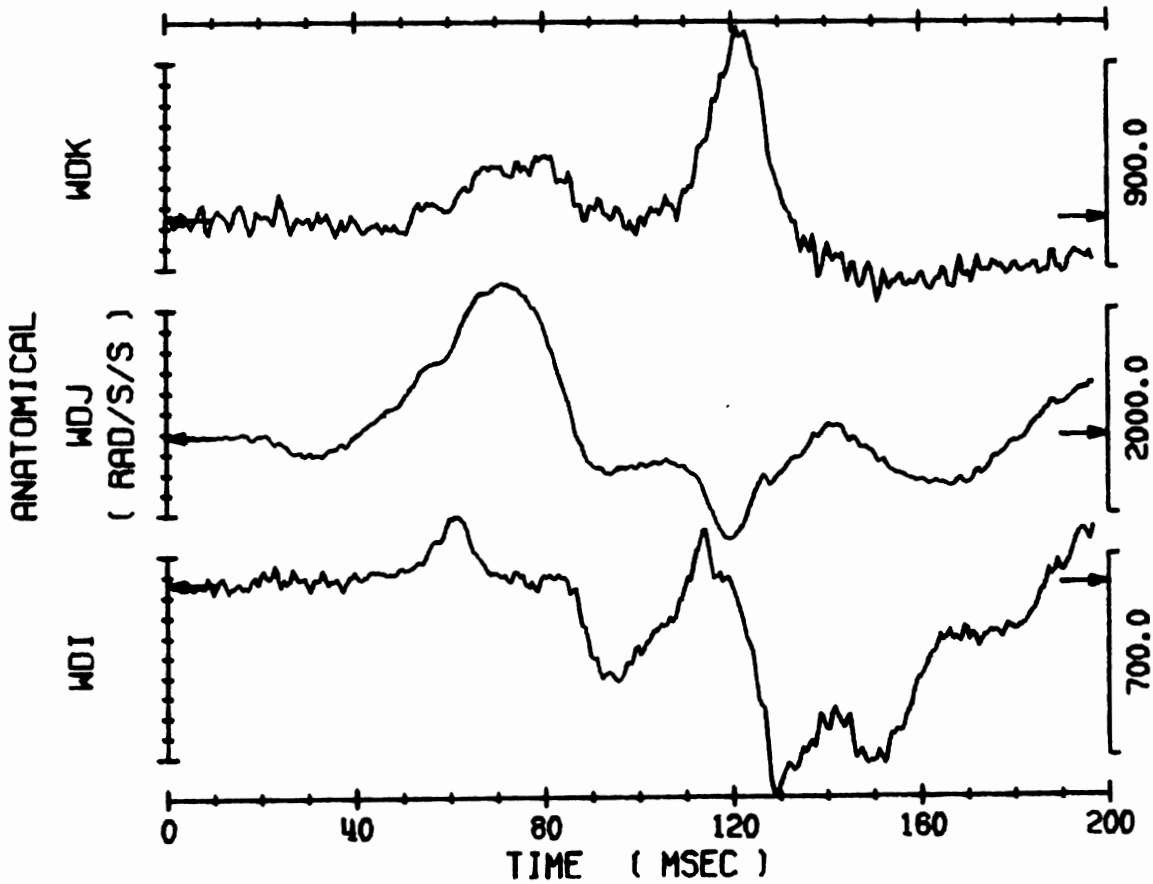
TIME (MSEC)

MEASURED ACCELERATIONS

ANG VELOCITIES



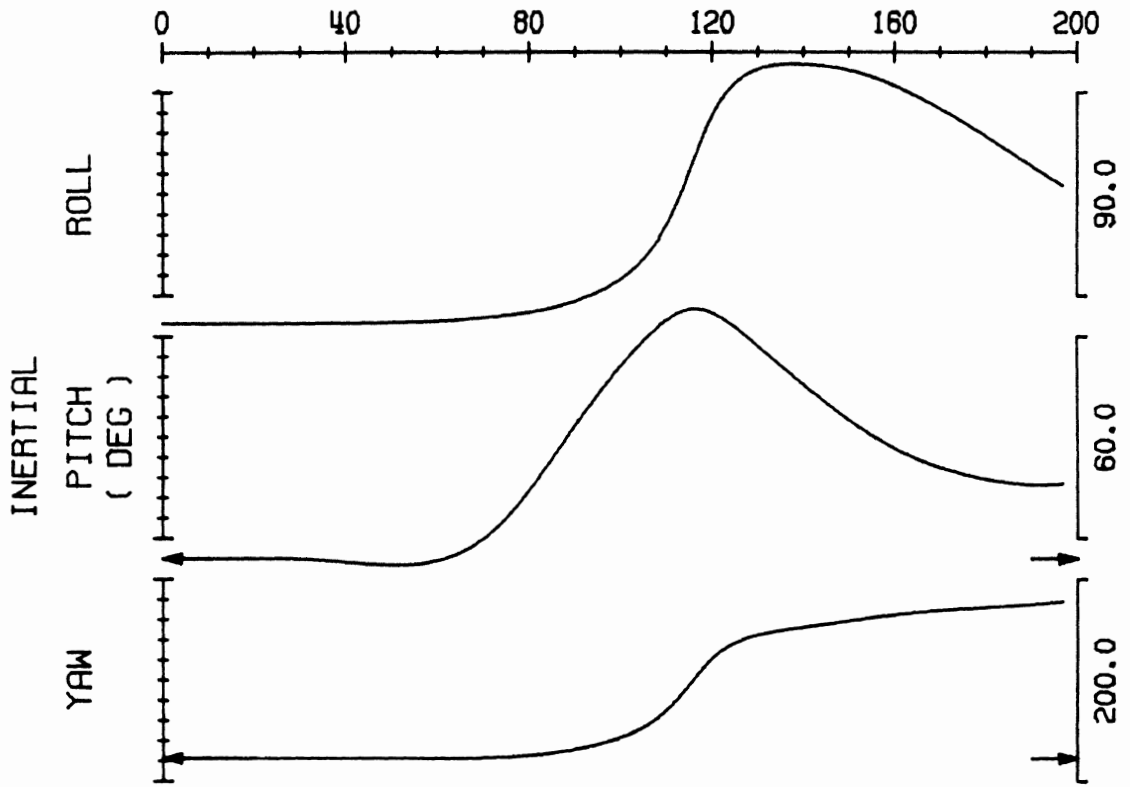
ANG ACCELERATIONS



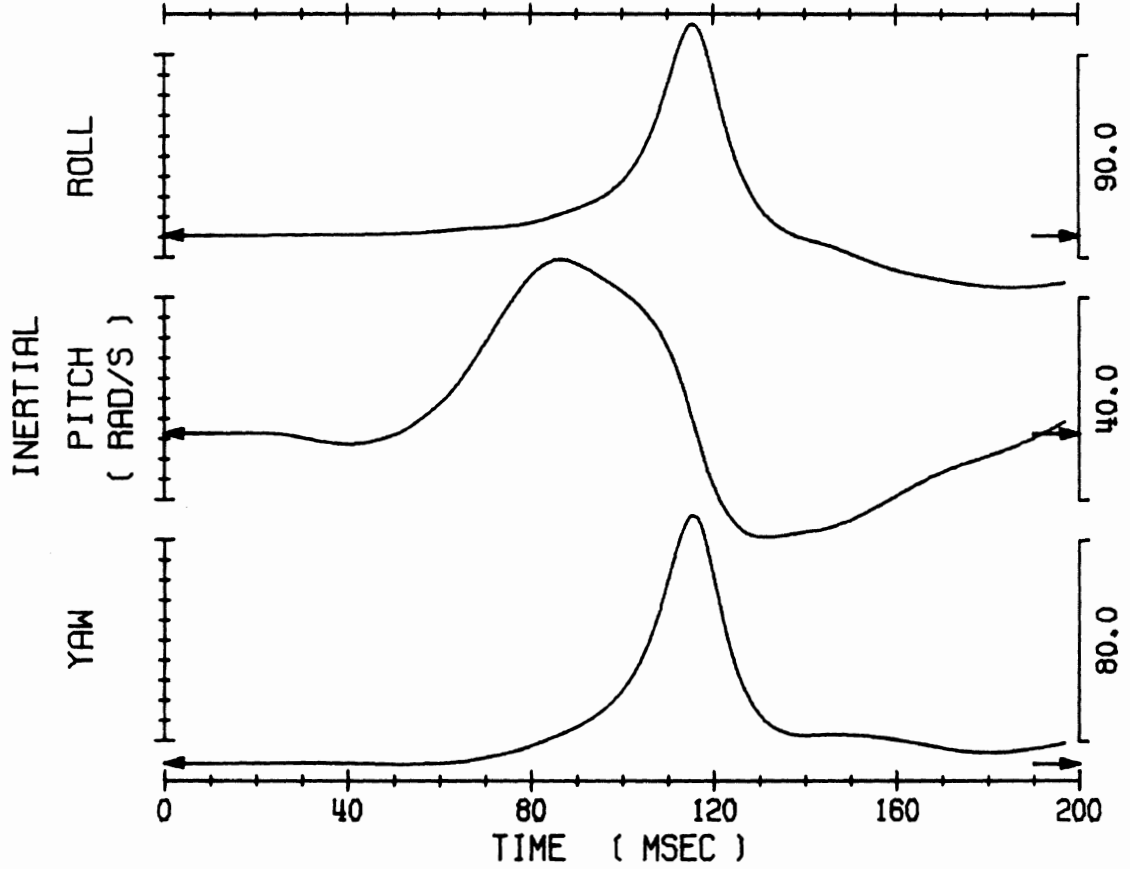
TIME (MSEC)

3-D ANGULAR MOTION

EULER ANGLES



EULER RATES

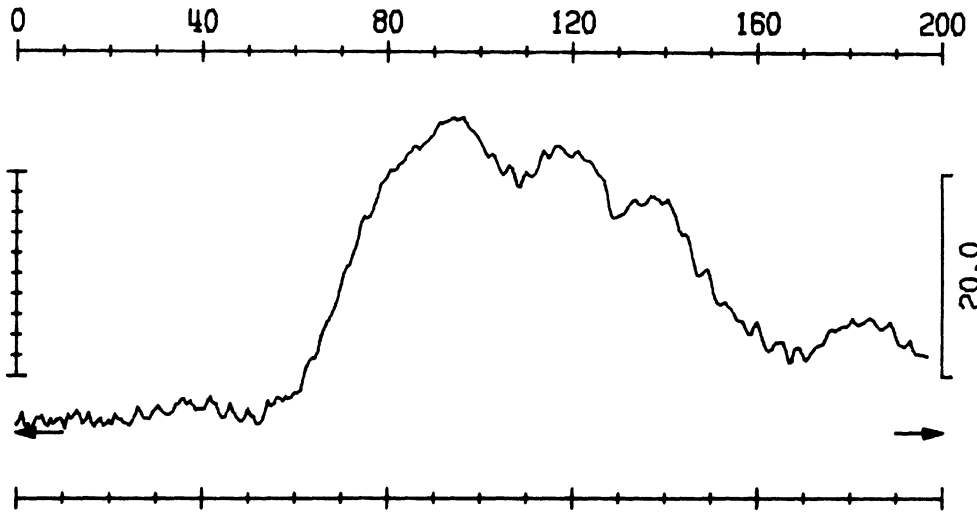


3-D ROTATIONS

RESULTANT

GSI = 272

HIC = 242



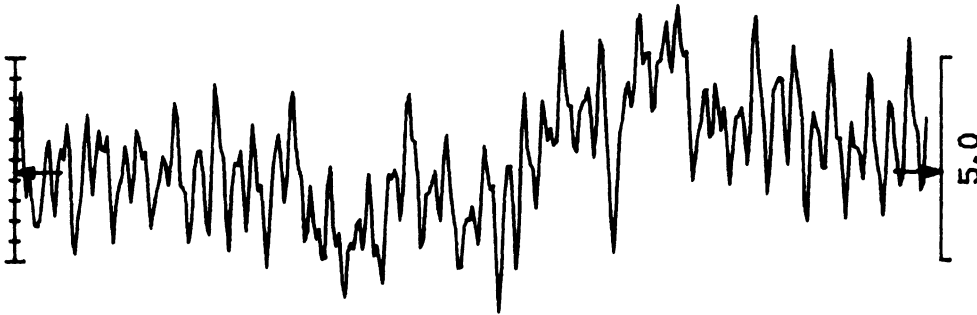
HEAD STD TRIAX (ACT)

S-I

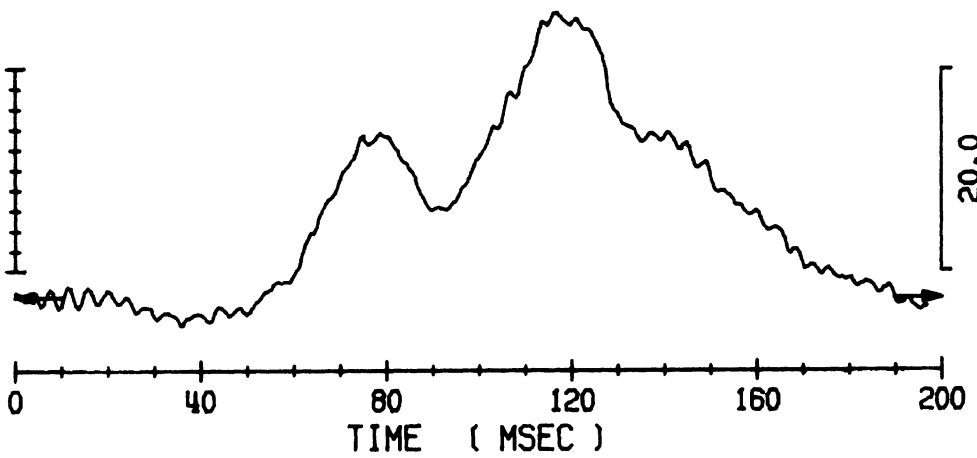


READINGS

L-R
(G'S)



A-P



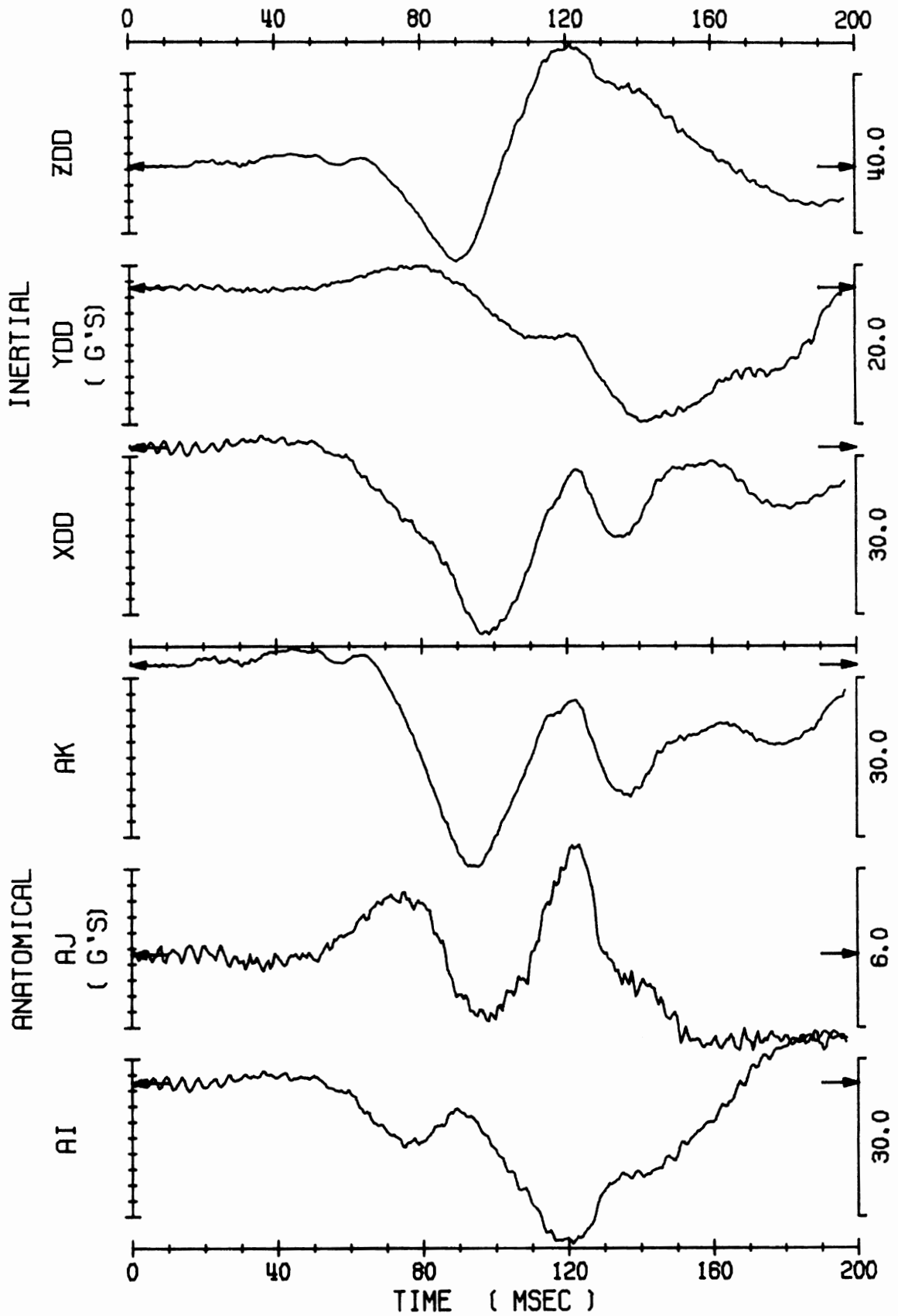
MEASURED ACCELERATIONS

FILE: 400

76B011-1: DUM-M

GSI= 414, HIC= 351

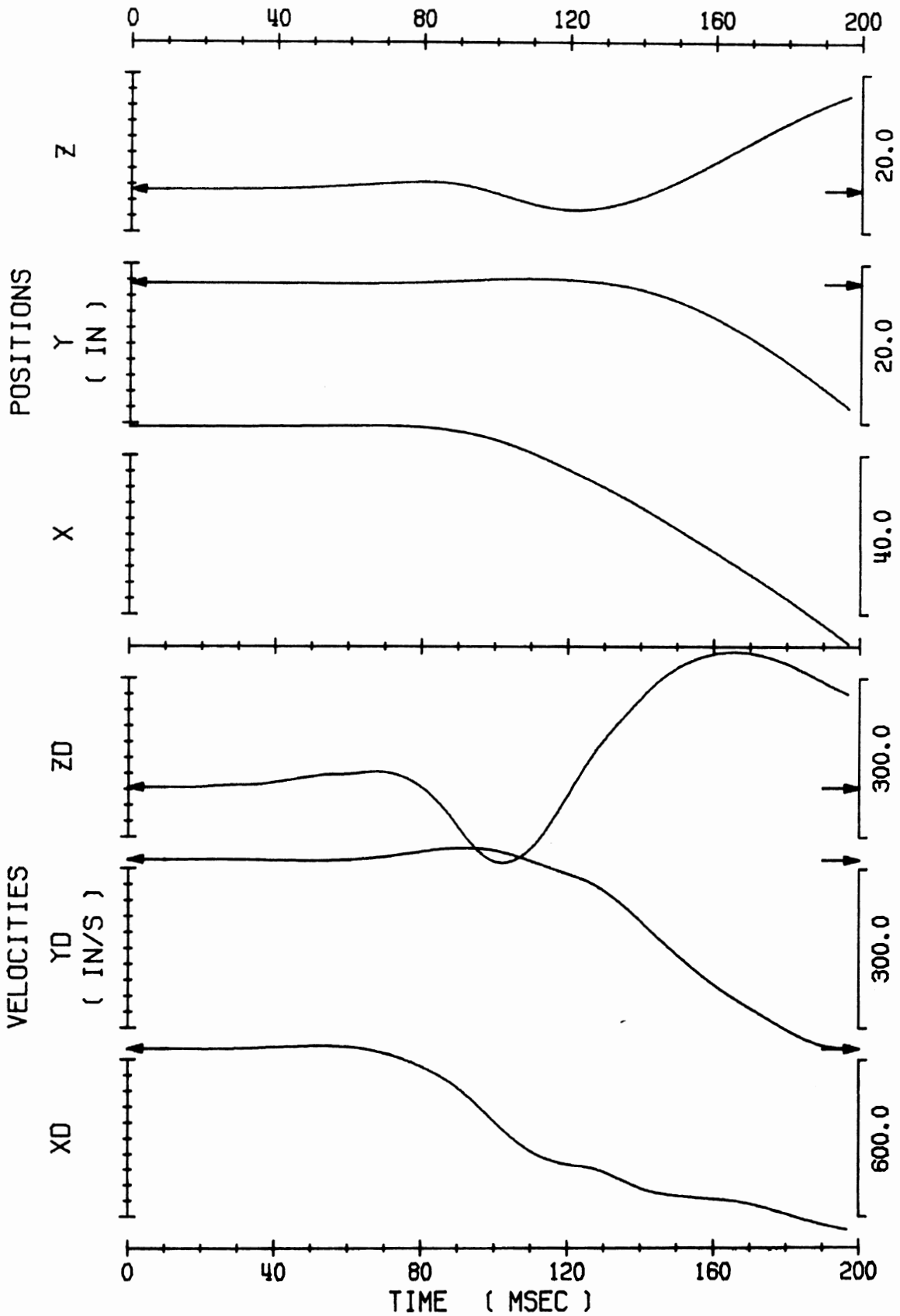
ACC OF: HEAD STD TRIAX



3-D ACCELERATIONS

HEAD STD TRIAX

INERTIAL MOTION OF:



3-D TRANSLATIONS

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: 76BC12
=====

SUBJECT: DUM-M

10.4 G-LEVEL
109. MS LONG
22.9 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1114. | 832. | 884. | 1495. | 0. | 0. |
| (LBS) @ (MS) | 82.6 | 78.9 | 90.8 | 90.1 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|--|-------------------|-------|-----|-------|-----|-------|-----|
| | | MIN | MAX | MIN | MAX | MIN | MAX |

| | | | | | | | |
|----------------|-----|-------|------|-----|-----|-------|-------|
| IN THORAX ACC: | 0. | -1. | 25. | 0. | 0. | -18. | 3. |
| (G'S) @ (MS) | 0.0 | 113.5 | 71.6 | 0.0 | 0.0 | 118.6 | 142.1 |
| GSI= | 0 | | | | | | |

| | | | | | | | |
|----------------|-----|------|-------|-----|-----|-------|------|
| IN PELVIS ACC: | 0. | -24. | 2. | 0. | 0. | -3. | 13. |
| (G'S) @ | 0.0 | 91.5 | 122.0 | 0.0 | 0.0 | 145.4 | 95.3 |

| | | | | | | | |
|----------------|------|------|-------|-------|-------|-------|-------|
| EX THORAX ACC: | 26. | -23. | 1. | -11. | 9. | -5. | 13. |
| (G'S) @ | 75.1 | 72.0 | 114.3 | 111.2 | 118.9 | 138.6 | 108.5 |
| GSI= | 111 | | | | | | |

| | | | | | | | |
|----------------|-----|------|-------|-----|-----|-------|------|
| EX PELVIS ACC: | 0. | -22. | 3. | 0. | 0. | -3. | 21. |
| (G'S) @ | 0.0 | 91.5 | 124.1 | 0.0 | 0.0 | 147.5 | 93.4 |

.....

| | | | | | | | |
|----------------|-------|-------|-------|--------|-------|-------|-------|
| HEAD ANG ACC : | 1492. | -738. | -25. | -1134. | 1450. | -424. | 582. |
| (RAD/S/S) @ | 63.9 | 136.3 | 177.0 | 113.3 | 63.8 | 177.0 | 115.0 |

| | | | | | | | |
|----------------|------|-------|------|-------|------|-------|-------|
| HEAD ANG VEL : | 36.8 | -26.8 | 4.8 | 4.8 | 35.9 | 3.3 | 16.0 |
| (RAD/S) @ | 80.8 | 178.1 | 79.0 | 175.0 | 81.2 | 177.0 | 127.1 |

| | | | | | | | |
|----------------|--|--|-------|--|-------|--|-------|
| EULER ANGLES : | | | 148.1 | | 68.5 | | 110.4 |
| (DEGREES) @ | | | 177.0 | | 107.0 | | 129.1 |

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| | | | | | | | |
|----------------|------|-------|-------|-------|-------|------|-------|
| HEAD C.G. ACC: | 39. | -26. | 7. | -5. | 4. | -38. | -9. |
| (G'S) @ | 86.4 | 111.6 | 177.0 | 177.0 | 116.0 | 86.2 | 113.0 |

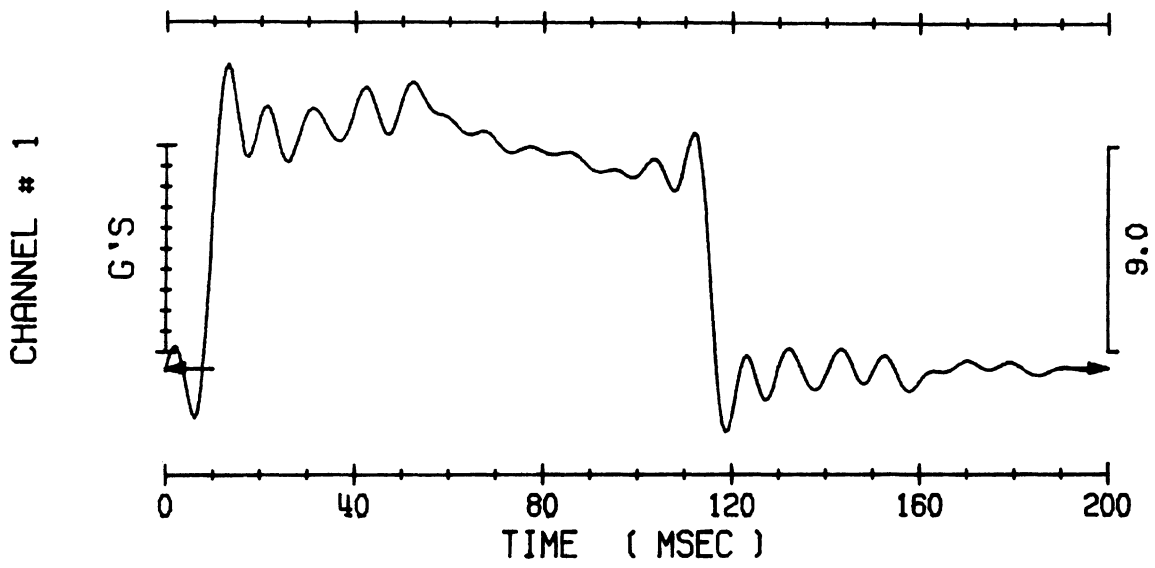
HEAD C.G. HIC= 332

| | | | | | | | |
|----------------|-------|-------|------|-------|------|-------|-------|
| HEAD C.G. VEL: | 774. | -634. | 10. | -359. | 29. | -134. | 230. |
| (IN/S) @ | 188.9 | 177.0 | 43.6 | 177.0 | 86.5 | 94.8 | 155.5 |

| | | | | | | | |
|----------------|--|--|-------|--|-------|--|-------|
| HEAD C.G. DIS: | | | -11.9 | | 0.8 | | -2.4 |
| (IN) @ | | | 114.5 | | 114.5 | | 114.4 |

FILE: 406

76B012-1: DUM-M



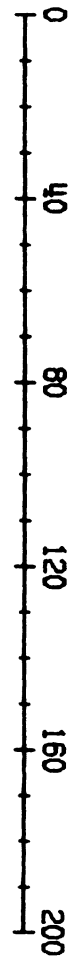
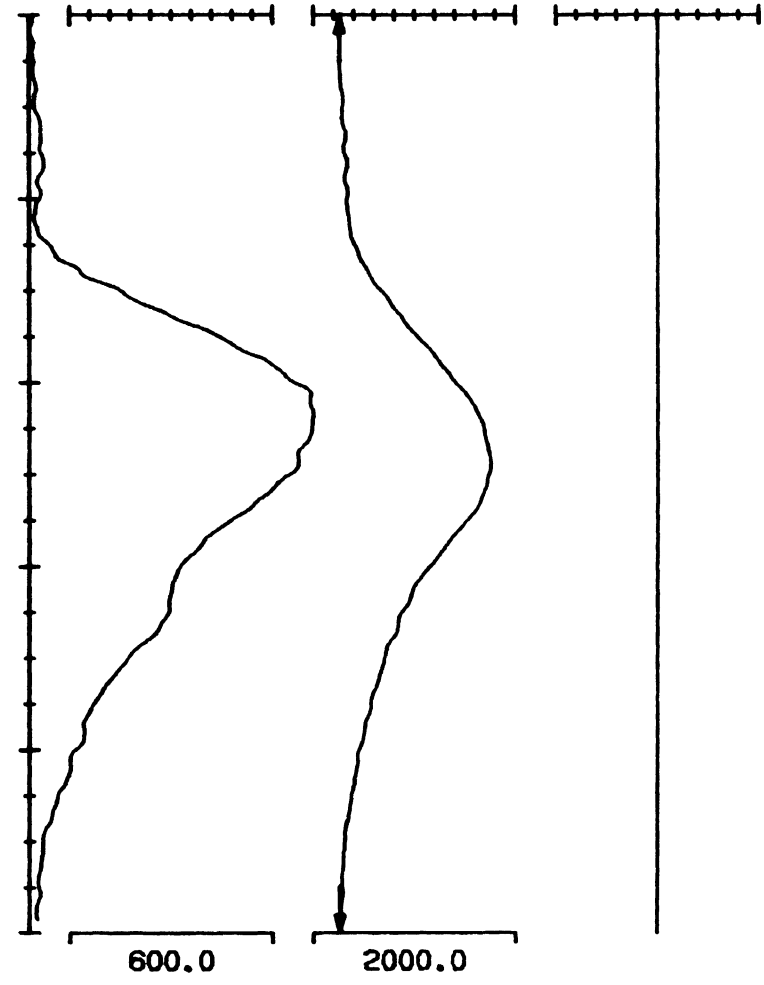
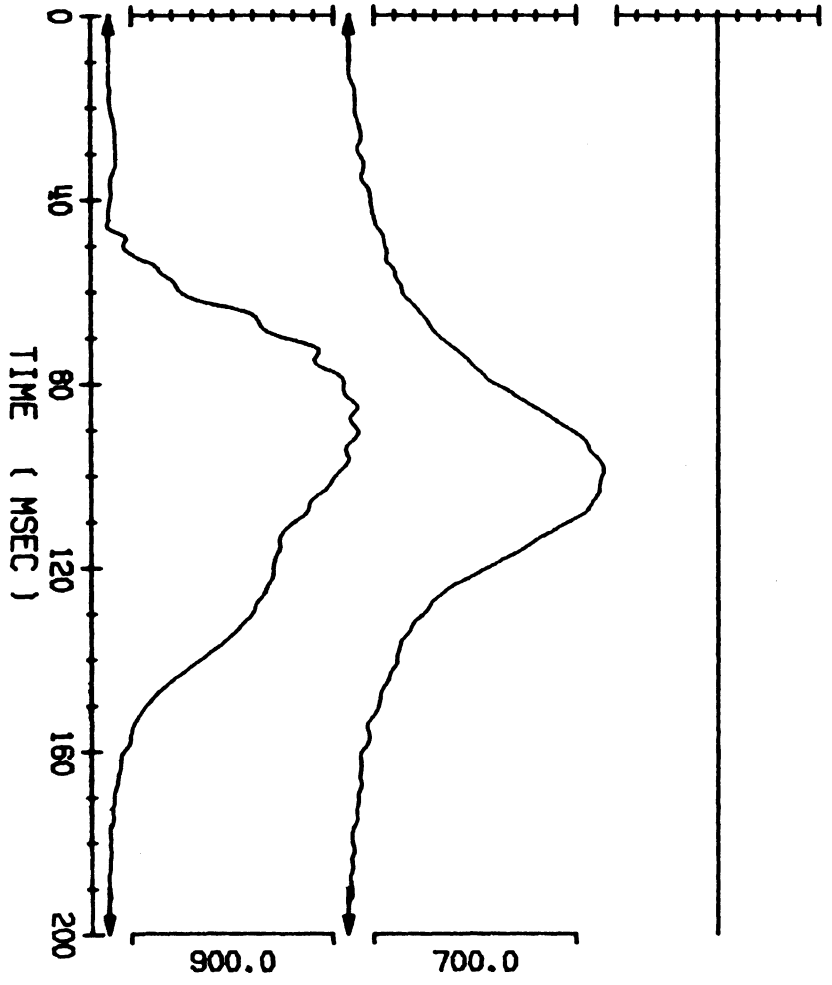
SLED DECELERATION

LEFT SIDE

RIGHT SIDE

UPPER SHOULDER
LAP BELT (LBS)
FEMUR

LOWER SHOULDER
LAP BELT (LBS)
FEMUR



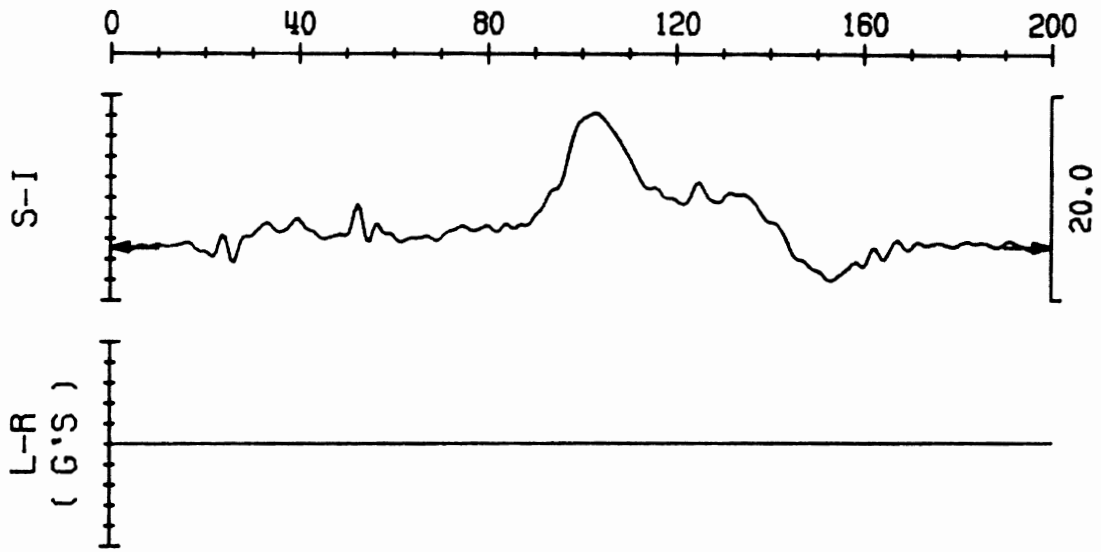
FILE: 417

76B012-2: DUM-M

MEASURED FORCES

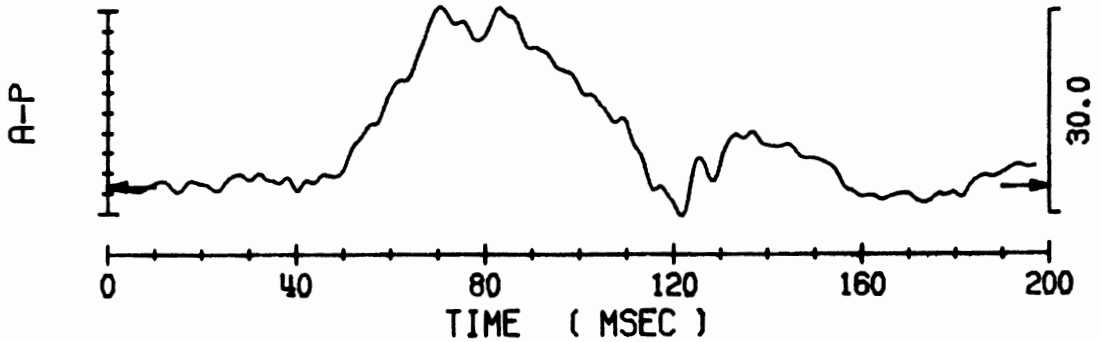
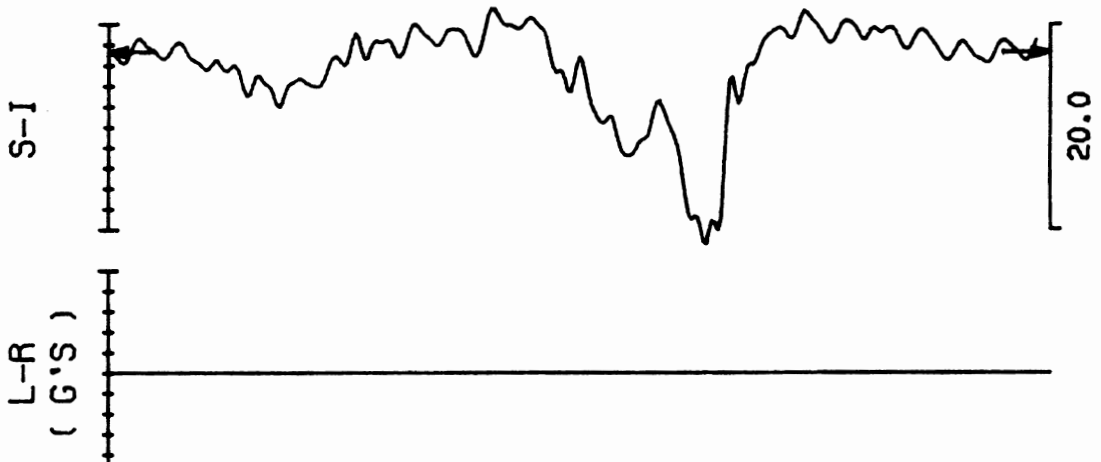
PELVIS

INTERNAL

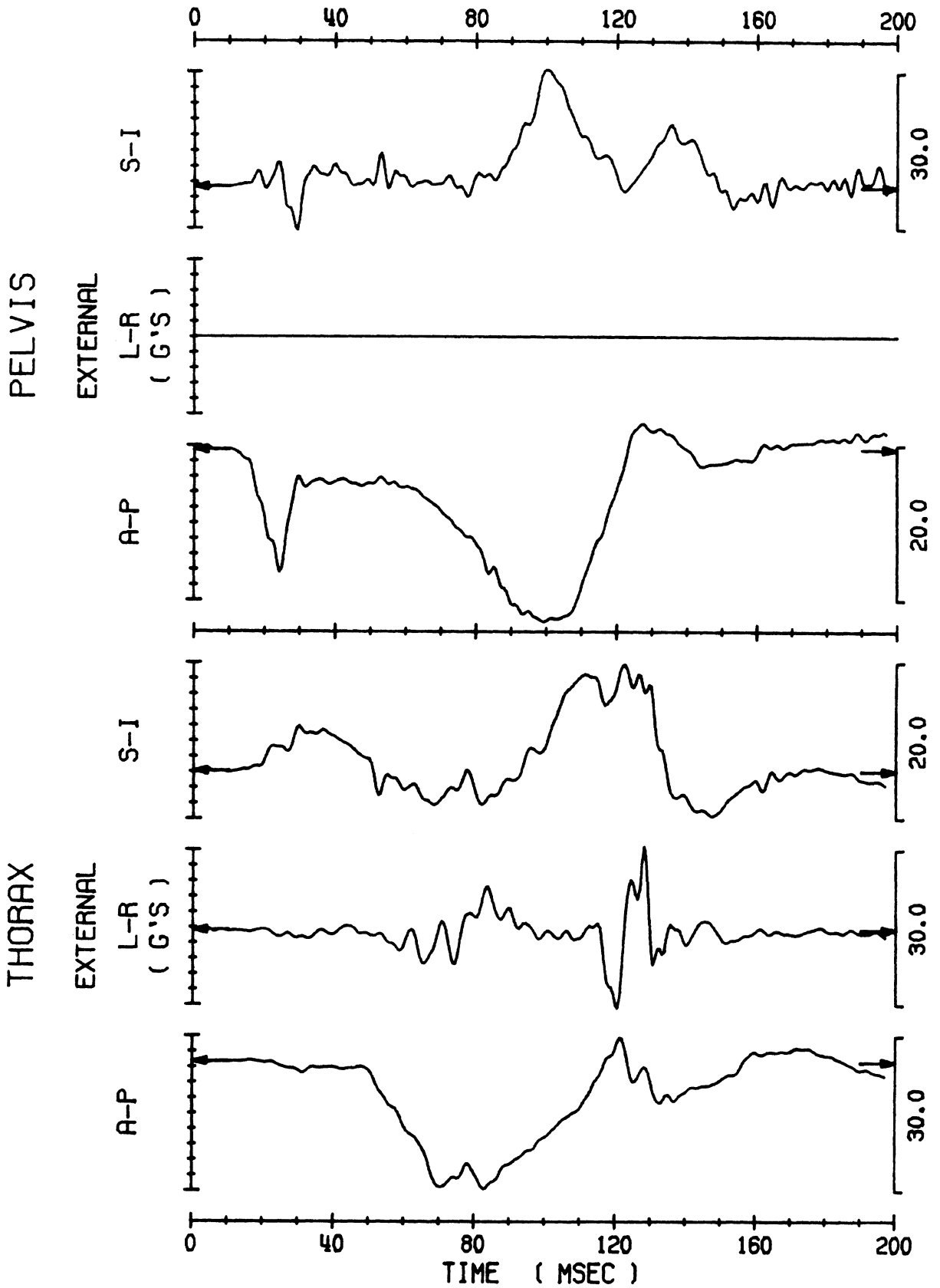


THORAX

INTERNAL

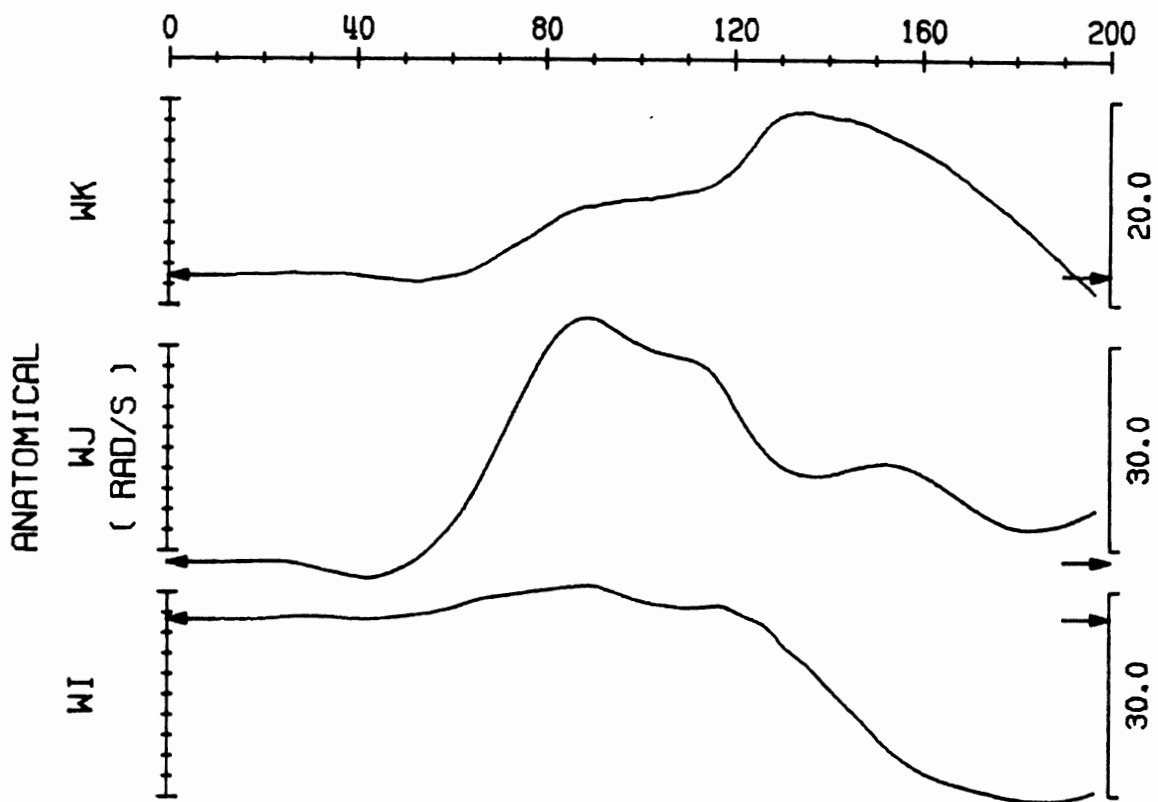


MEASURED ACCELERATIONS

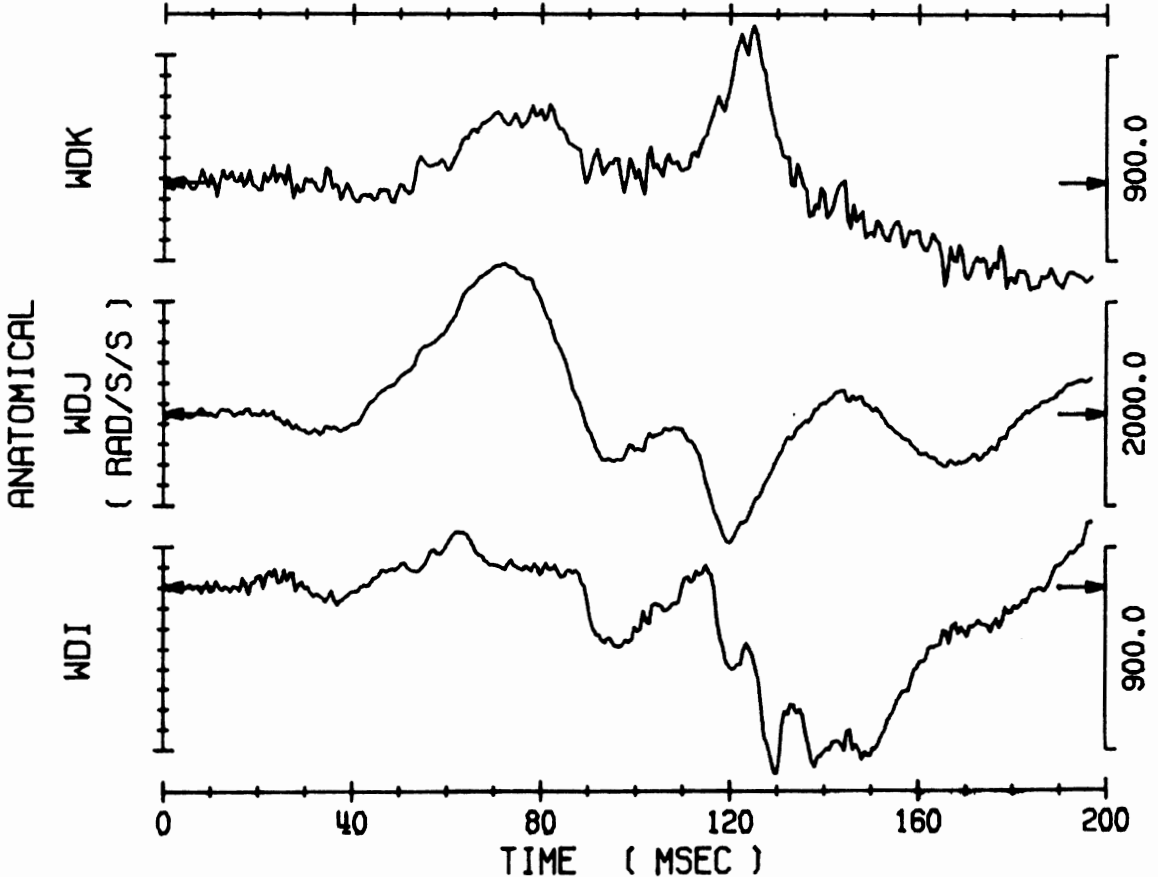


MEASURED ACCELERATIONS

ANG VELOCITIES



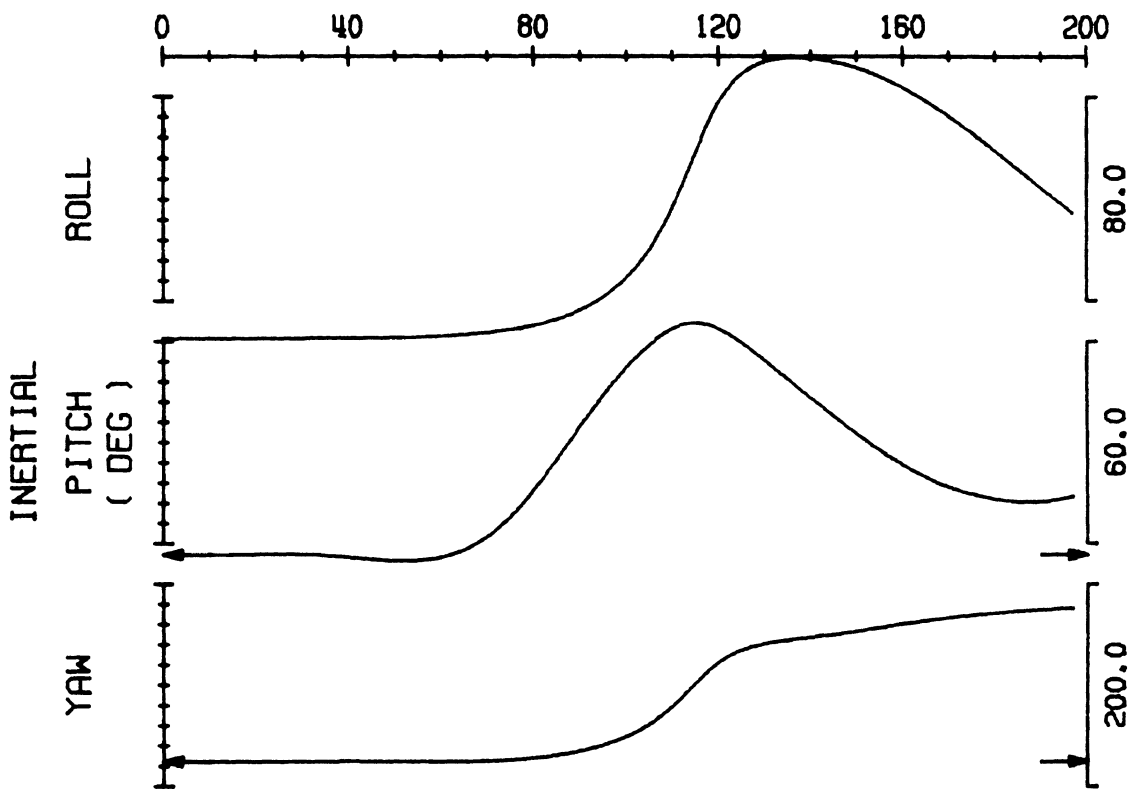
ANG ACCELERATIONS



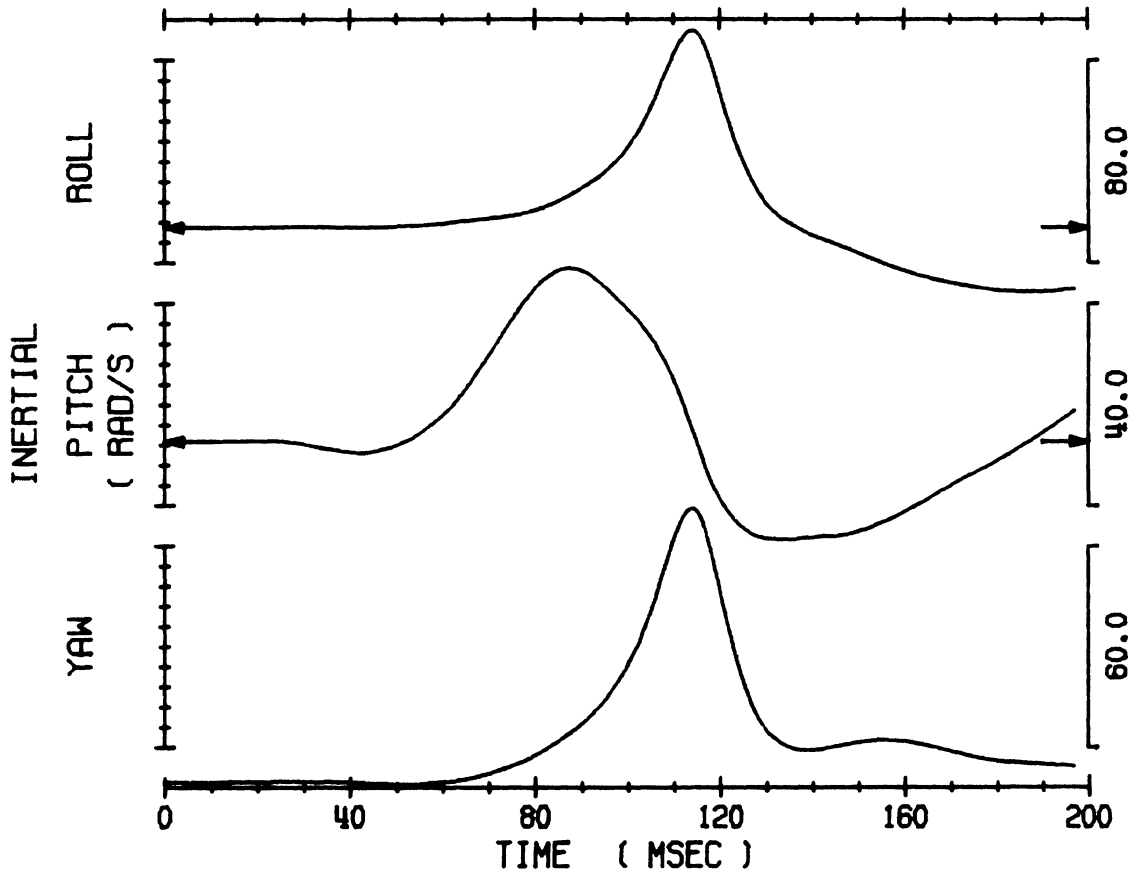
TIME (MSEC)

3-D ANGULAR MOTION

EULER ANGLES



EULER RATES



3-D ROTATIONS

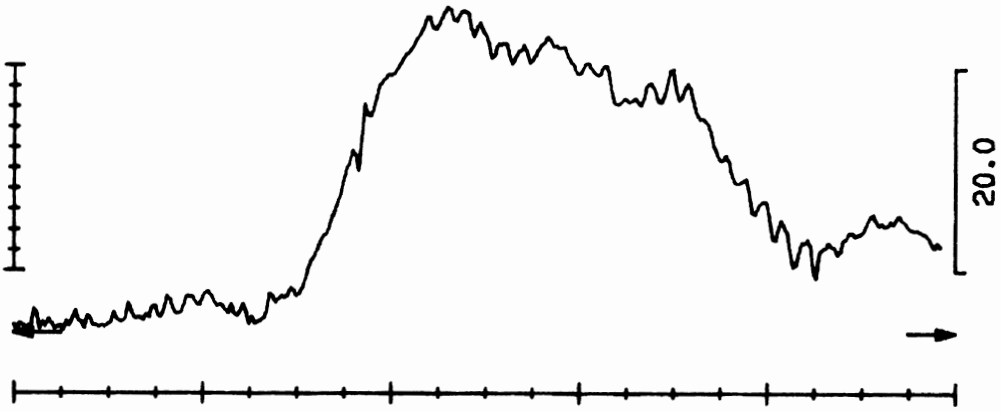
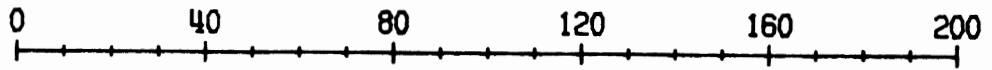
FILE: 414

76B012-1: DUM-M

RESULTANT

GSI = 298

HIC = 267



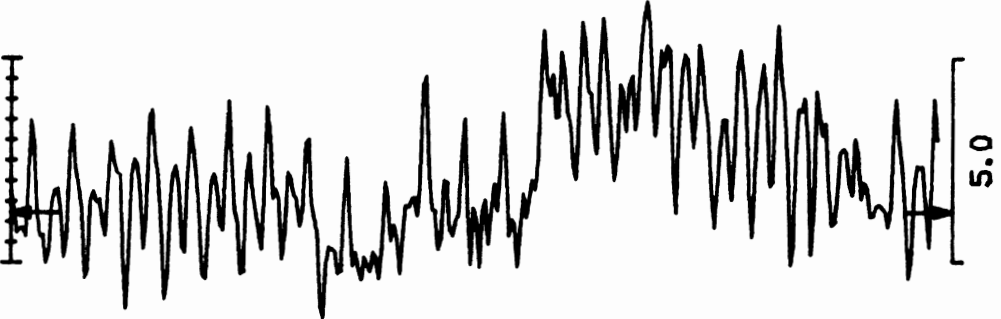
HEAD STD TRIAX (ACT)

S-I

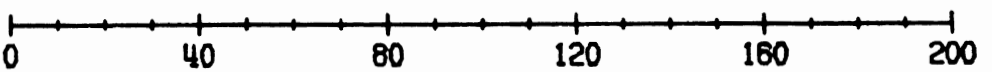


READINGS

L-R
(G'S)



A-P



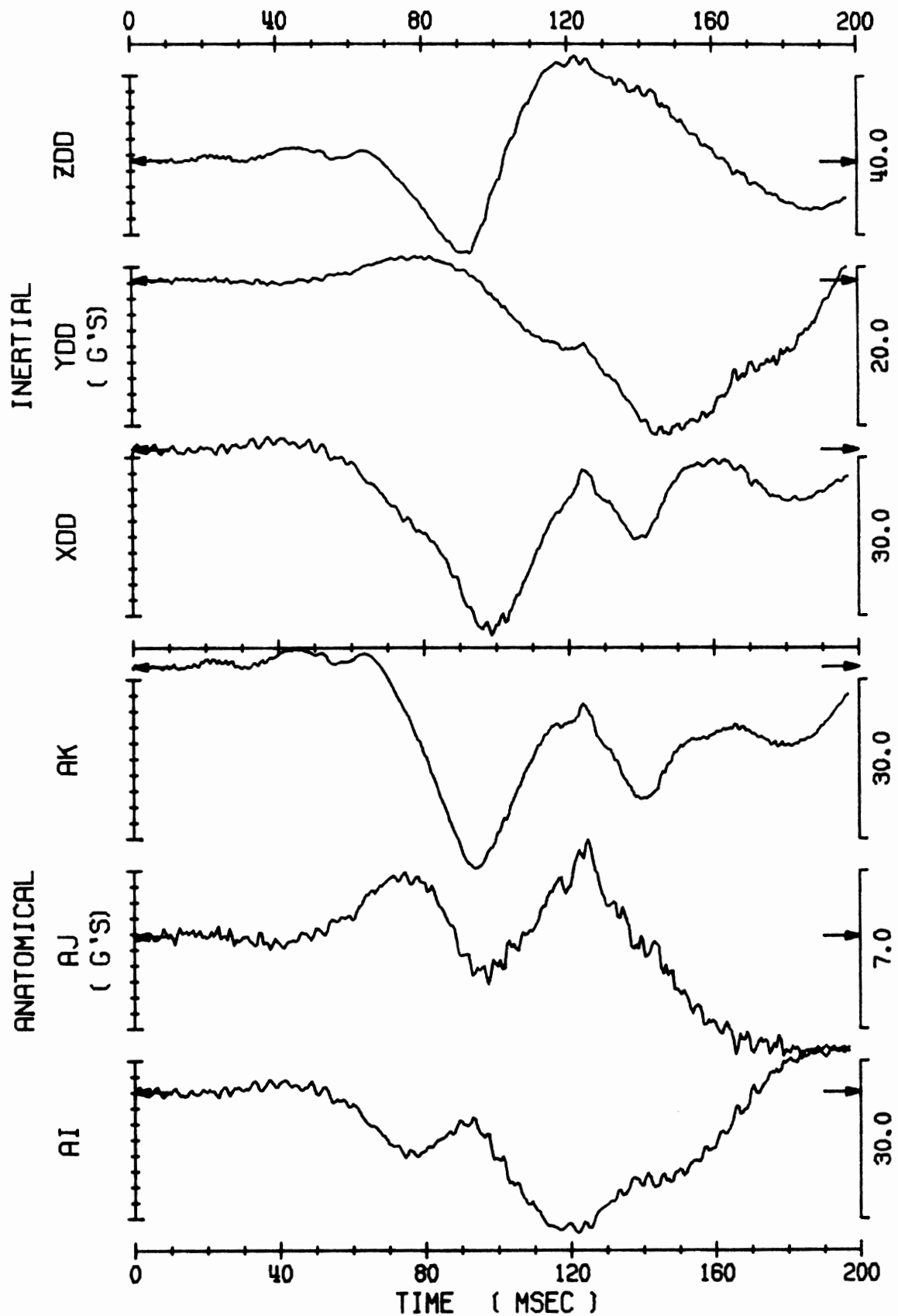
TIME (MSEC)

MEASURED ACCELERATIONS

ACC OF: HEAD STD TRIAX GSI= 392, HIC= 332

FILE: 412

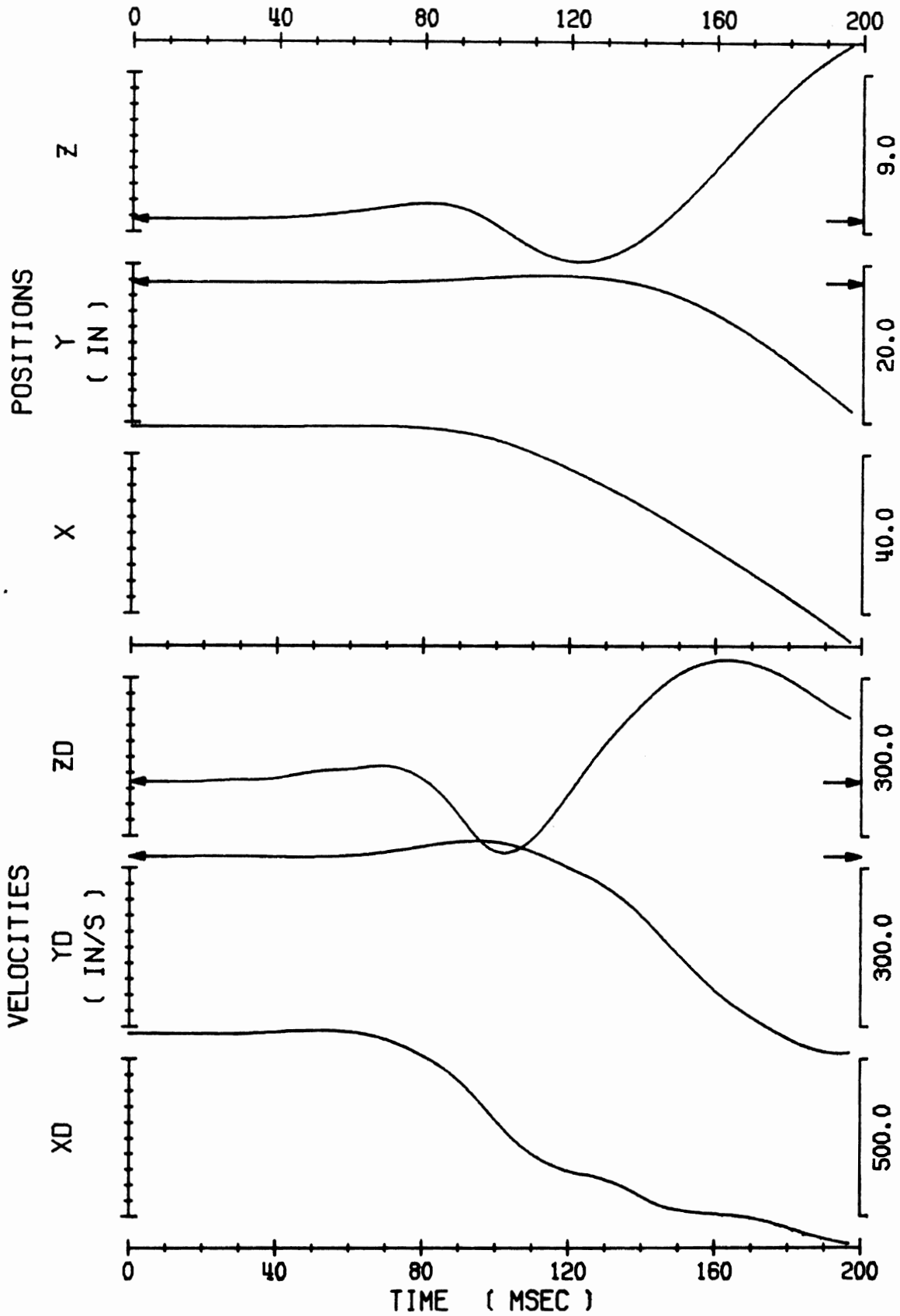
76B012-1: DUM-M



3-D ACCELERATIONS

HEAD STD TRIAX

INERTIAL MOTION OF:



3-D TRANSLATIONS

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: 76B013

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SUBJECT: DUM-H

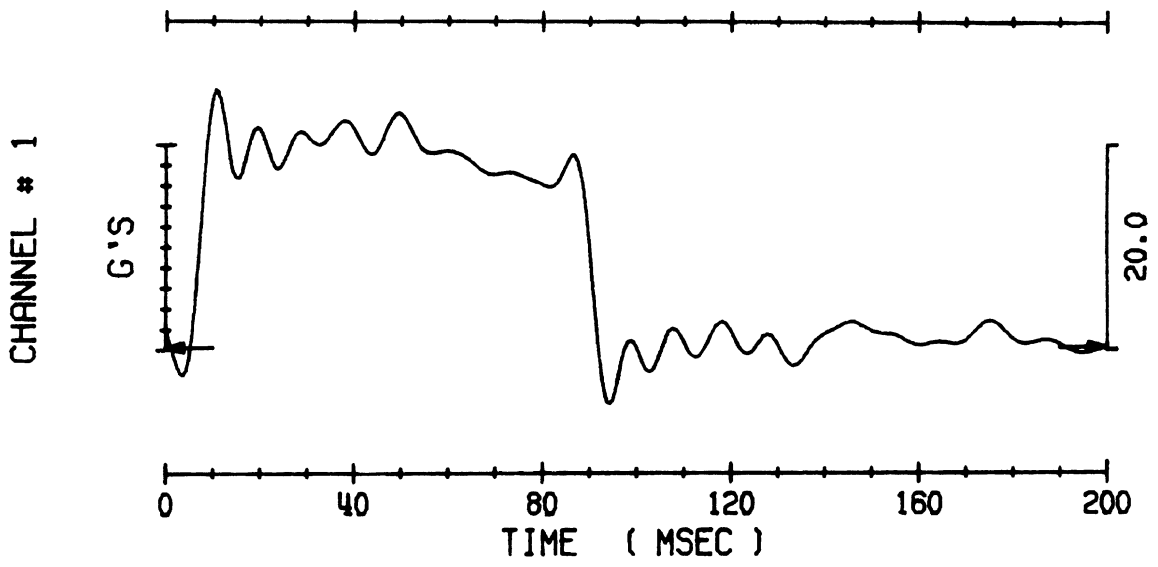
19.9 G-LEVEL
87. MS LONG
35.5 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1810. | 1490. | 1661. | 2911. | 0. | 0. |
| (LBS) @ (MS) | 72.2 | 74.0 | 76.5 | 75.3 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|--------|-------|-------|-------|--------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | -0. | 40. | 0. | 0. | -13. | 2. |
| (G'S) @ (MS) | 0.0 | 94.5 | 62.6 | 0.0 | 0.0 | 98.4 | 58.5 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | -49. | 7. | 0. | 0. | -6. | 20. |
| (G'S) @ | 0.0 | 74.7 | 146.8 | 0.0 | 0.0 | 119.4 | 76.3 |
| EX THORAX ACC: | 40. | -39. | 2. | -23. | 3. | -11. | 11. |
| (G'S) @ | 69.7 | 62.7 | 94.7 | 89.9 | 98.6 | 110.7 | 85.7 |
| GSI= | 336 | | | | | | |
| EX PELVIS ACC: | 0. | -56. | 8. | 0. | 0. | -10. | 54. |
| (G'S) @ | 0.0 | 164.4 | 170.6 | 0.0 | 0.0 | 148.4 | 156.7 |
| | | | | | | | |
| HEAD ANG ACC : | 4013. | -2355. | 671. | -986. | 1912. | -1281. | 534. |
| (RAD/S/S) @ | 130.9 | 130.7 | 100.3 | 94.5 | 53.9 | 155.4 | 129.7 |
| HEAD ANG VEL : | 56.2 | -48.1 | 3.6 | -14.4 | 46.8 | -25.5 | 13.7 |
| (RAD/S) @ | 190.9 | 168.1 | 55.4 | 179.7 | 76.5 | 177.8 | 131.9 |
| EULFR ANGLES : | | | 186.8 | | 76.2 | | 146.5 |
| (DEGREES) @ | | | 161.3 | | 91.4 | | 111.7 |
| | | | | | | | |
| HEAD C.G. ACC: | 60. | -29. | 2. | -13. | 5. | -58. | 12. |
| (G'S) @ | 76.5 | 97.8 | 183.2 | 152.2 | 183.2 | 76.6 | 171.0 |
| HEAD C.G. HIC= | 817 | | | | | | |
| HEAD C.G. VEL: | 793. | -724. | 9. | -354. | 25. | -255. | 243. |
| (IN/S) @ | 133.4 | 121.0 | 29.7 | 152.2 | 68.9 | 85.7 | 137.3 |
| HEAD C.G. DIS: | | | -21.7 | | -1.3 | | -6.9 |
| (IN) @ | | | 111.2 | | 111.2 | | 110.8 |

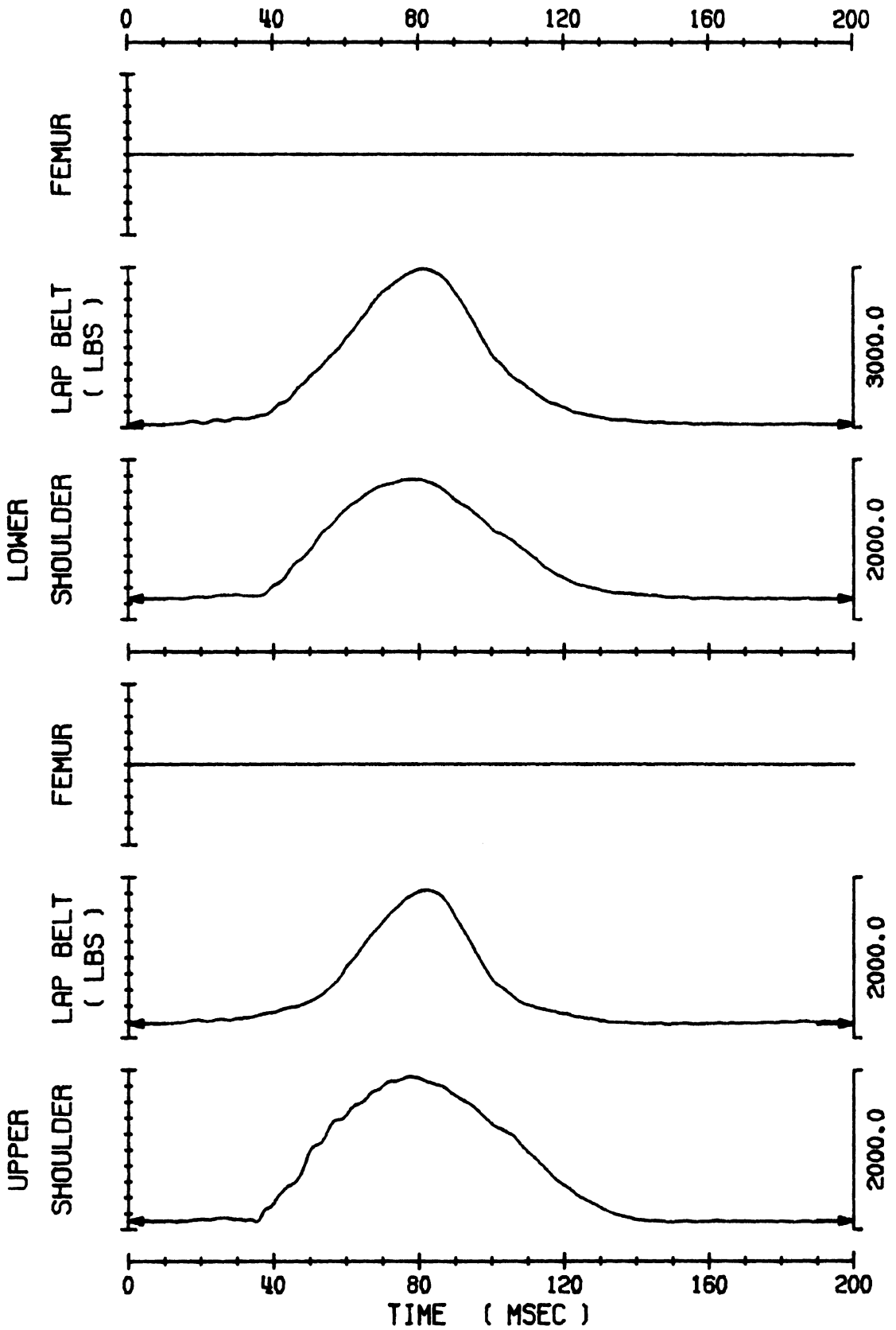
FILE: 418

76B013-1: DUM-H



SLED DECELERATION

RIGHT SIDE



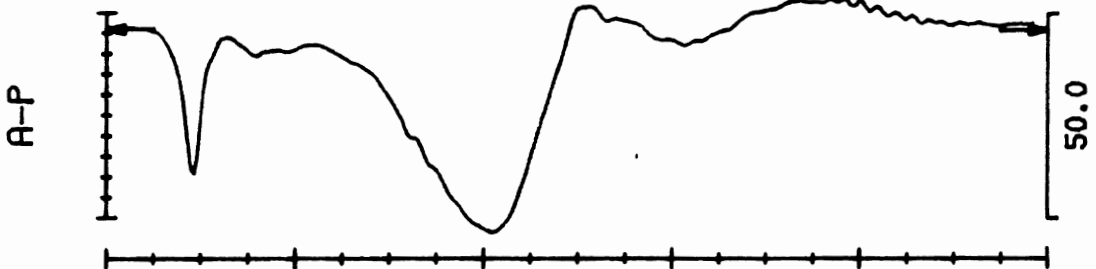
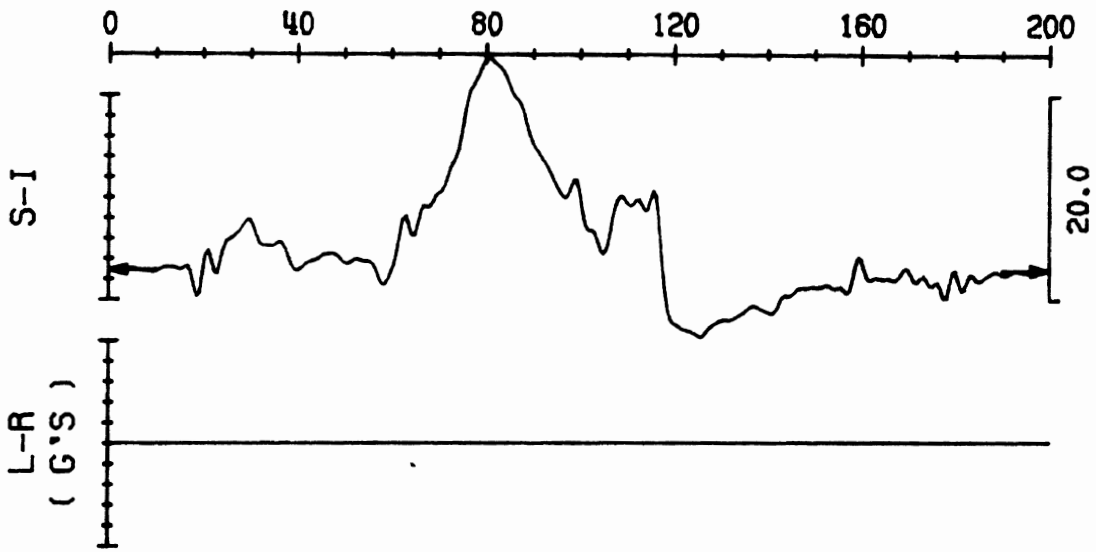
MEASURED FORCES

FILE: 427

76B013-2: DUM-H

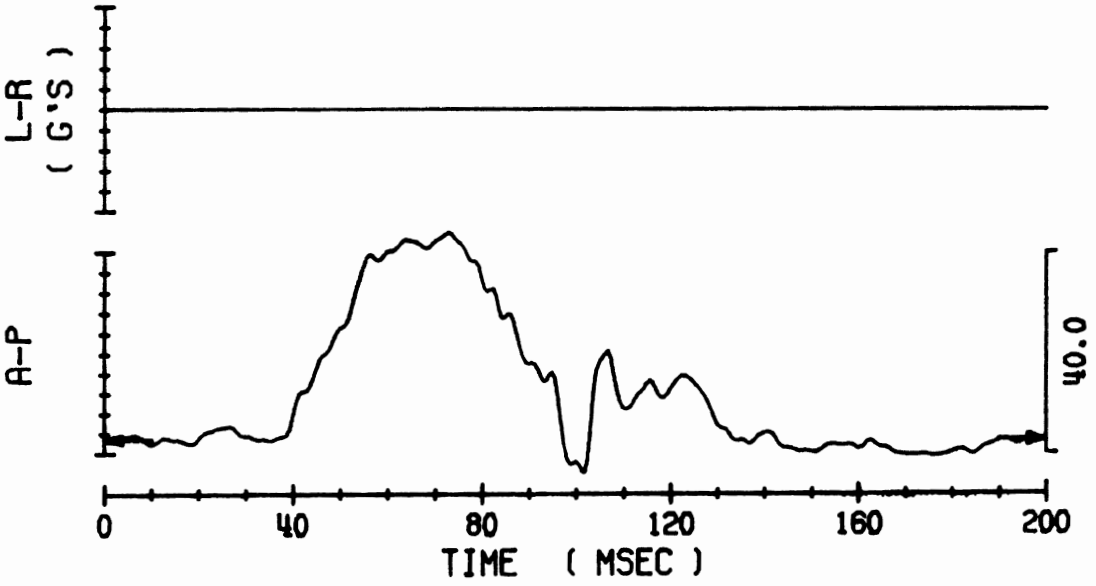
PELVIS

INTERNAL

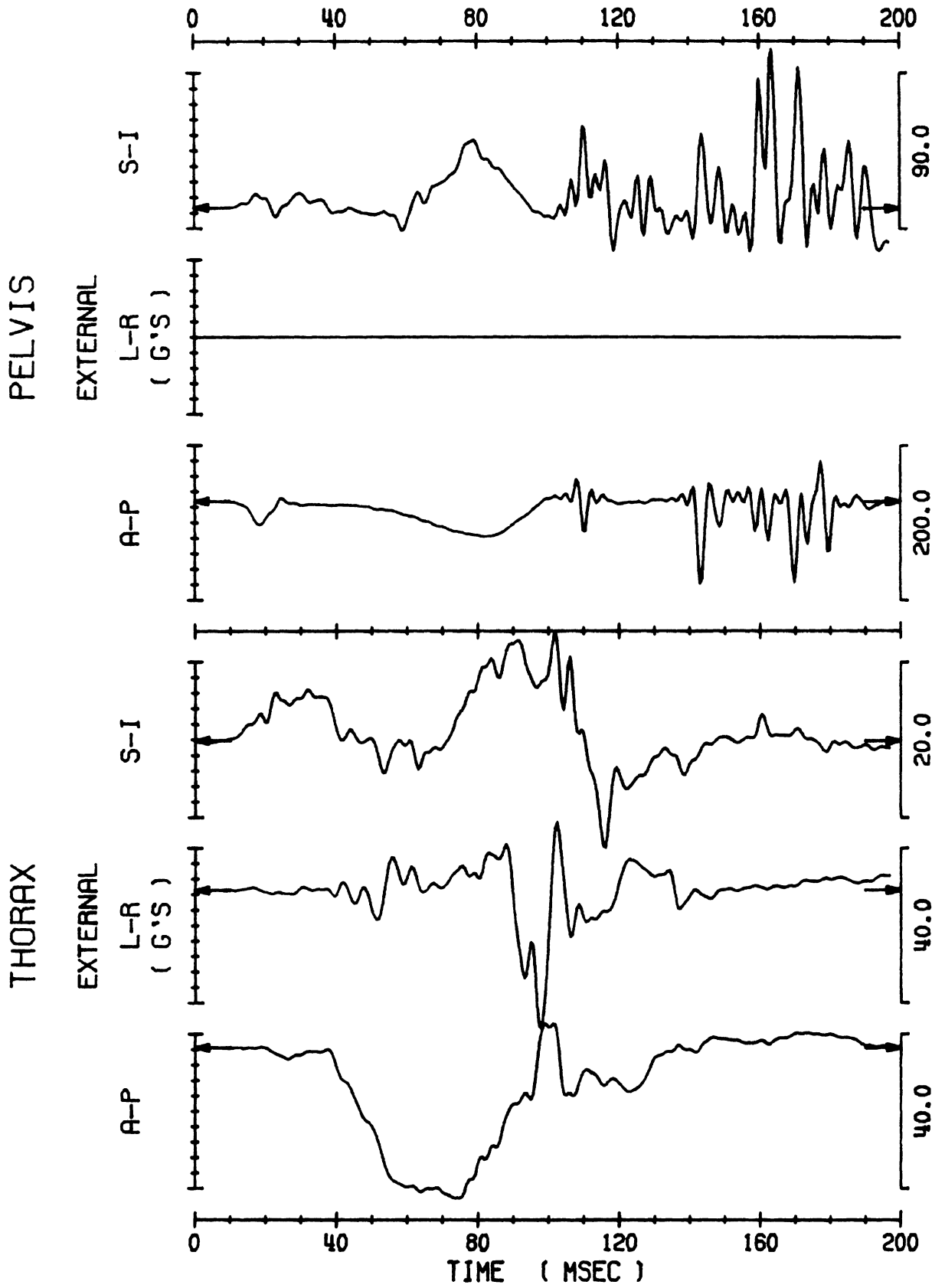


THORAX

INTERNAL



MEASURED ACCELERATIONS

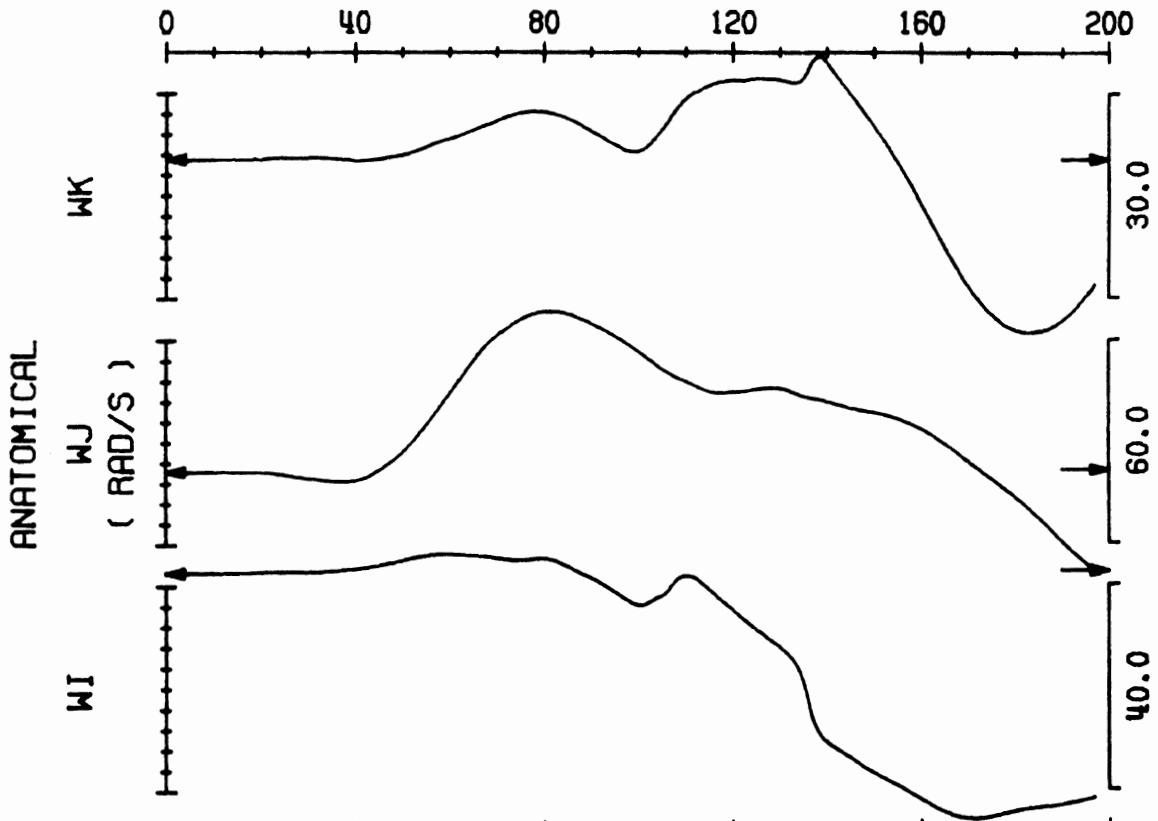


MEASURED ACCELERATIONS

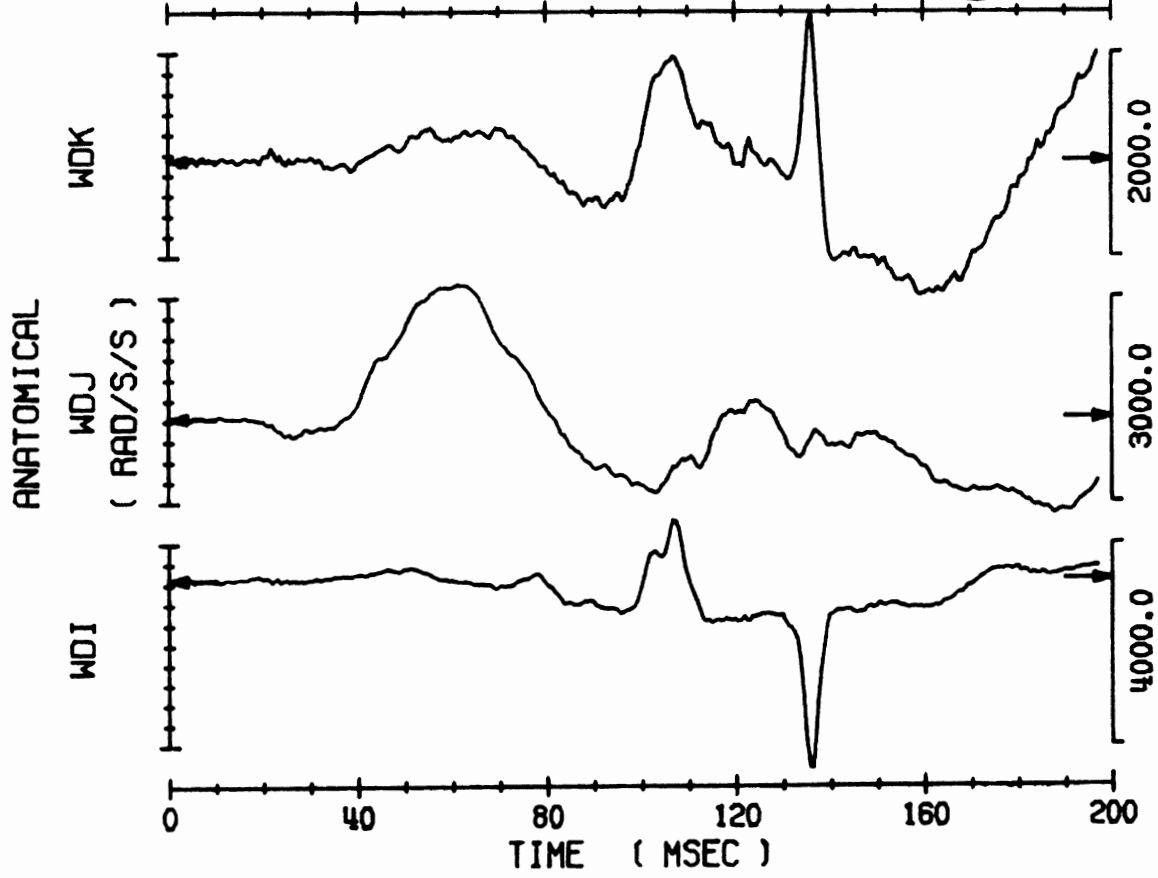
FILE: 422

76B013-1: DUM-H

ANG VELOCITIES



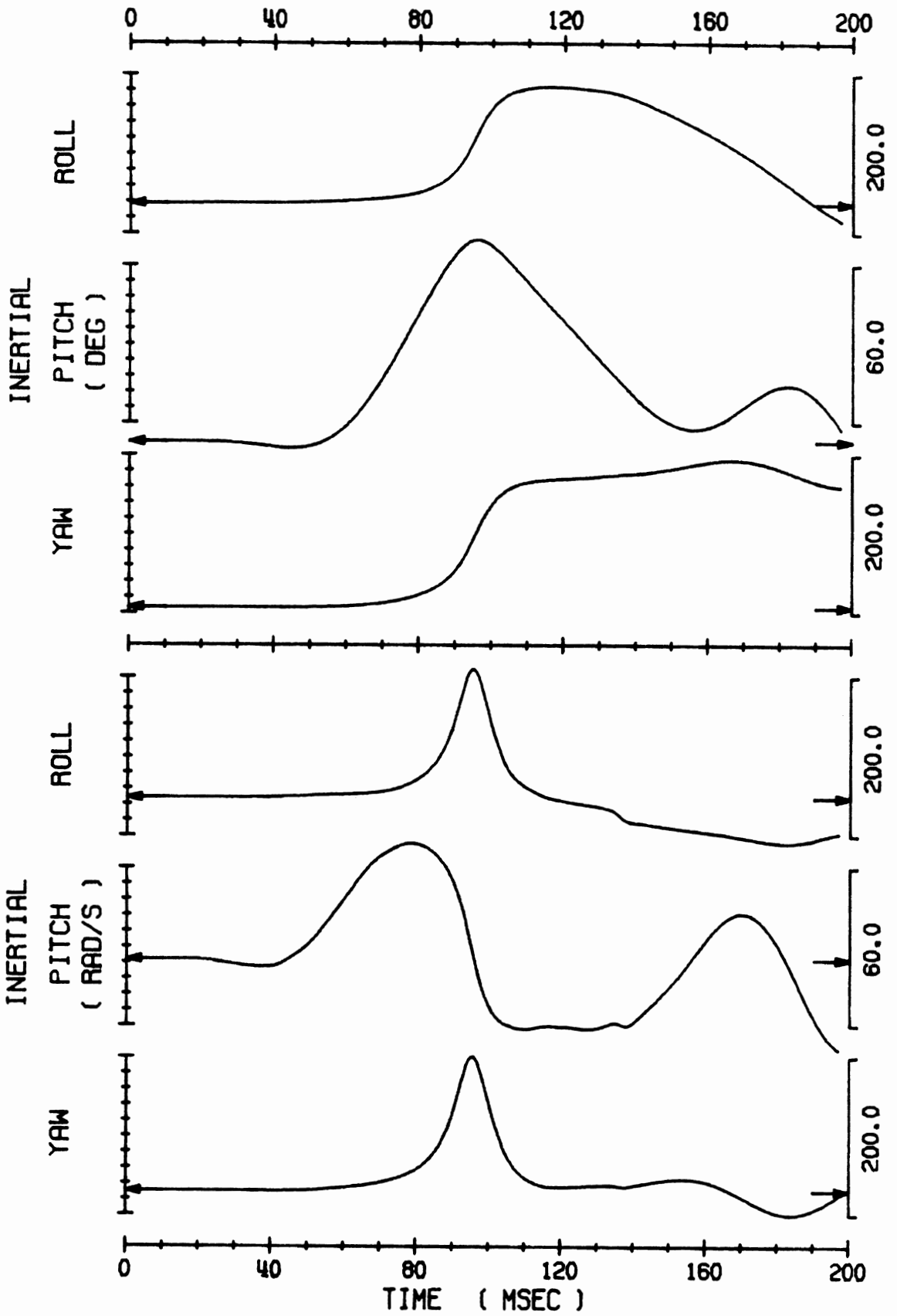
ANG ACCELERATIONS



3-D ANGULAR MOTION

EULER ANGLES

EULER RATES



3-D ROTATIONS

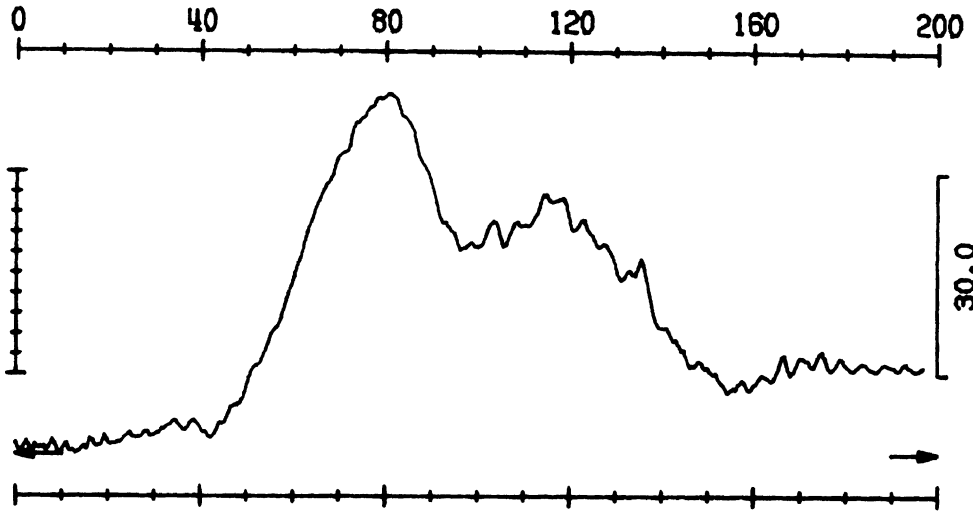
FILE: 426

76B013-1: DUM-H

RESULTANT

GSI = 765

HIC = 655



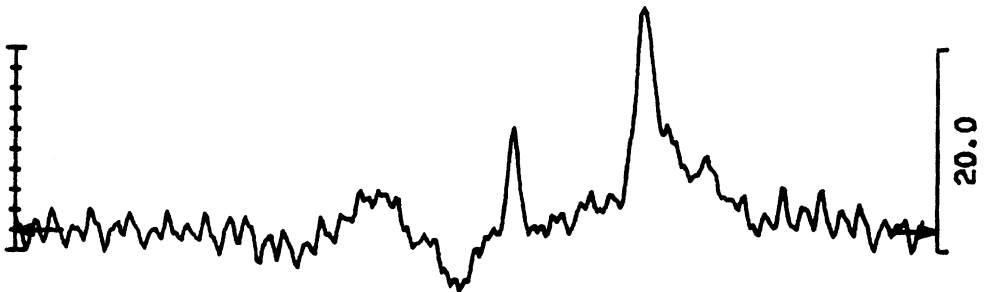
HEAD STD TRIAX (ACT)

S-I

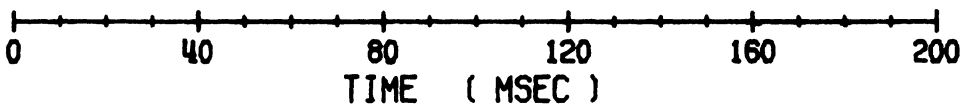
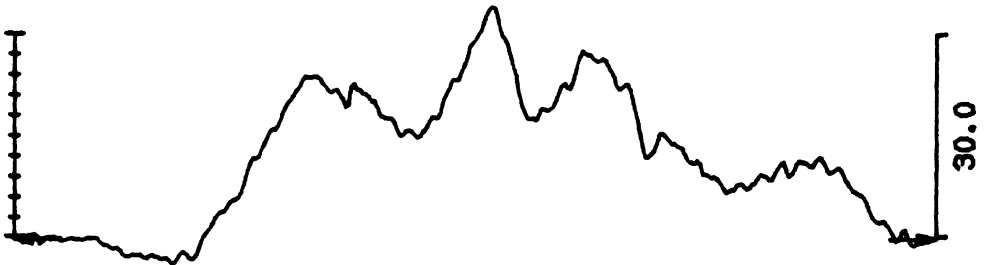


READINGS

L-R
(G'S)



A-P



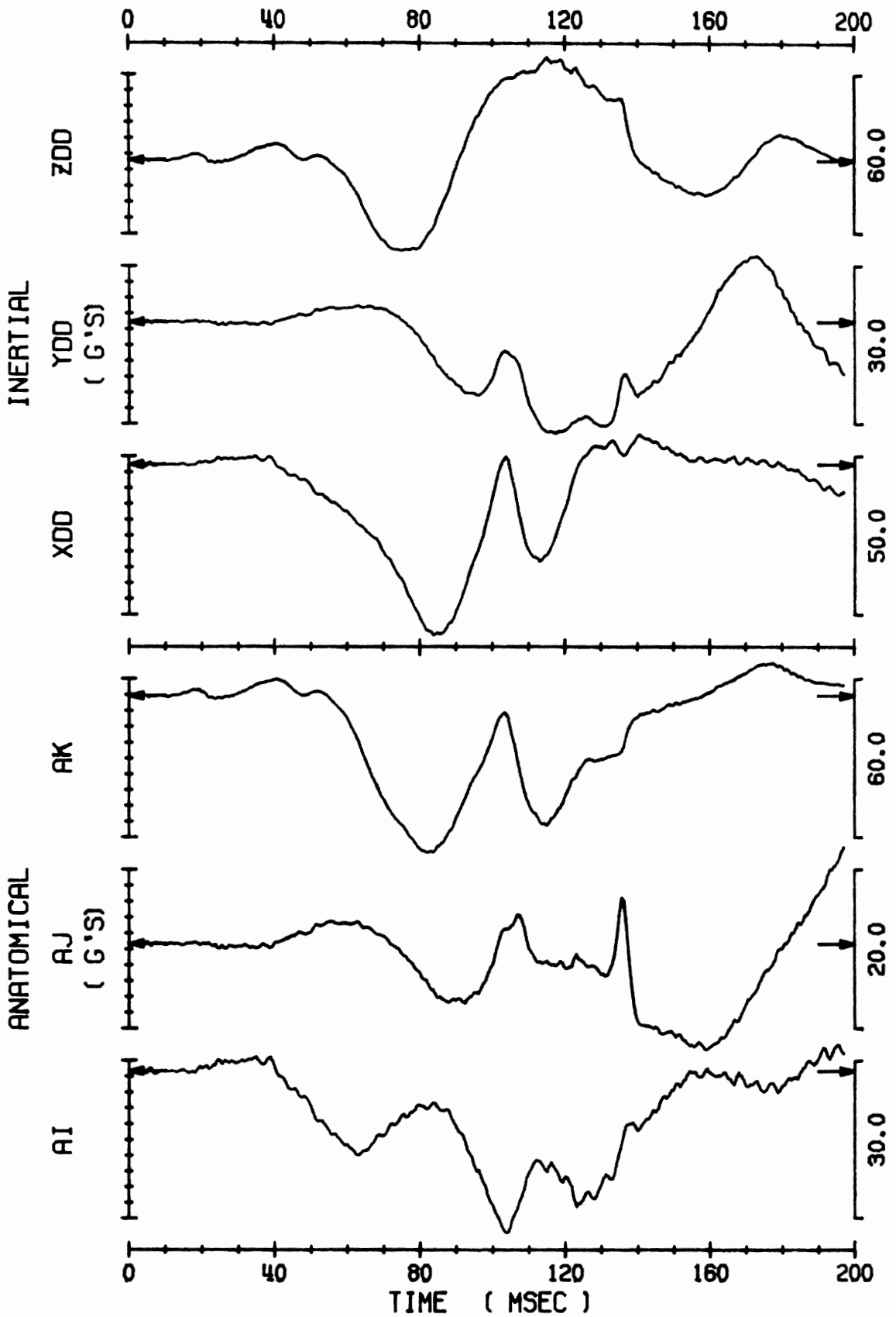
MEASURED ACCELERATIONS

FILE: 424

76B013-1: DUM-H

GSI= 950, HIC= 817

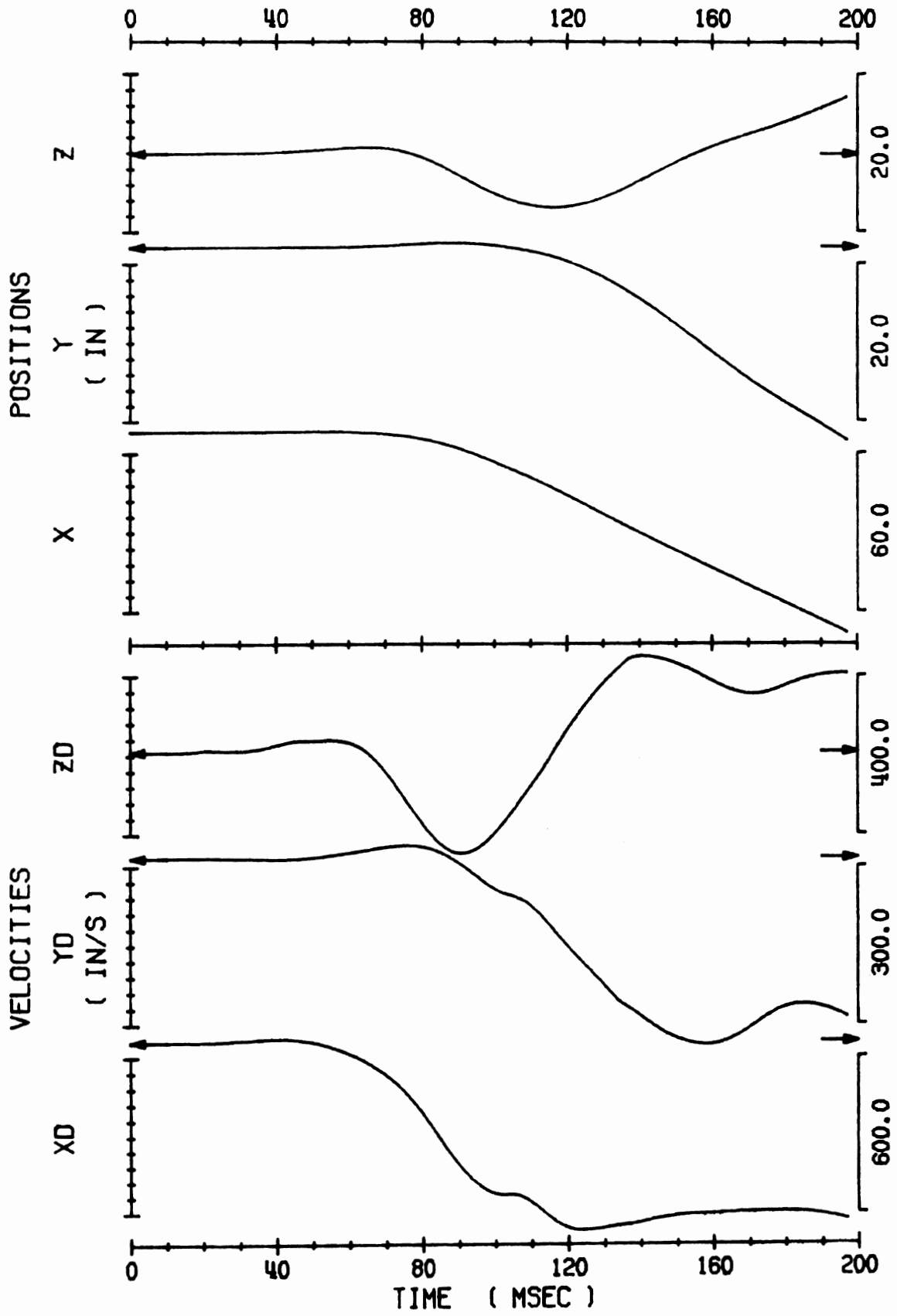
ACC OF: HEAD STD TRIAX



3-D ACCELERATIONS

HEAD STD TRIAX

INERTIAL MOTION OF:



3-D TRANSLATIONS

WHOLE BODY RESPONSE

SUMMARY

TEST NO.: 76B014

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SUBJECT: DUM-H

19.0 G-LEVEL
86. MS LONG
31.6 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1730. | 1432. | 1801. | 2820. | 0. | 0. |
| (LBS) @ (MS) | 70.9 | 74.6 | 77.1 | 77.1 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|-------|-------|-------|-------|-------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | -2. | 38. | 0. | 0. | -14. | 5. |
| (G'S) @ (MS) | 0.0 | 136.3 | 63.7 | 0.0 | 0.0 | 97.2 | 116.6 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | -53. | 7. | 0. | 0. | -4. | 14. |
| (G'S) @ | 0.0 | 76.0 | 102.3 | 0.0 | 0.0 | 123.9 | 77.8 |
| EX THORAX ACC: | 41. | -40. | 4. | -19. | 17. | -12. | 17. |
| (G'S) @ | 55.9 | 64.3 | 149.9 | 85.7 | 102.0 | 116.2 | 97.4 |
| GSI= | 347 | | | | | | |
| EX PELVIS ACC: | 0. | -51. | 23. | 0. | 0. | -10. | 21. |
| (G'S) @ | 0.0 | 76.0 | 118.8 | 0.0 | 0.0 | 50.1 | 74.7 |

.....

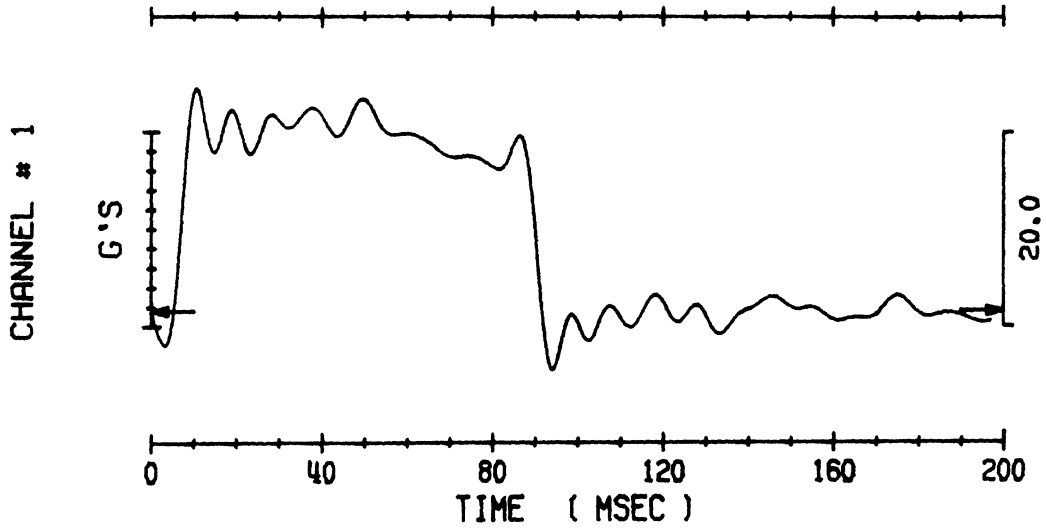
| | | | | | | | |
|----------------|-------|--------|-------|--------|-------|--------|-------|
| HEAD ANG ACC : | 7745. | -4346. | 1731. | -1843. | 1716. | -1837. | 2132. |
| (RAD/S/S) @ | 116.5 | 116.5 | 94.7 | 154.2 | 53.3 | 136.8 | 97.6 |
| HEAD ANG VEL : | 63.8 | -55.2 | 6.7 | -30.9 | 47.7 | -25.6 | 27.7 |
| (RAD/S) @ | 165.9 | 160.5 | 100.9 | 176.4 | 78.3 | 157.6 | 111.8 |
| EULER ANGLES : | | | 164.9 | | 81.0 | | 157.2 |
| (DEGREES) @ | | | 145.9 | | 89.3 | | 105.2 |

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| | | | | | | | |
|----------------|-------|-------|-------|-------|-------|-------|-------|
| HEAD C.G. ACC: | 74. | -40. | 4. | -16. | 18. | -56. | 15. |
| (G'S) @ | 116.5 | 96.1 | 171.9 | 129.6 | 178.3 | 115.6 | 157.8 |
| HEAD C.G. HIC= | 1047 | | | | | | |
| HEAD C.G. VEL: | 898. | -808. | 17. | -322. | 18. | -260. | 221. |
| (IN/S) @ | 189.7 | 179.6 | 35.1 | 139.0 | 68.4 | 84.4 | 125.2 |
| HEAD C.G. DIS: | | | -17.1 | | -0.8 | | -5.6 |
| (IN) @ | | | 103.6 | | 103.6 | | 104.2 |

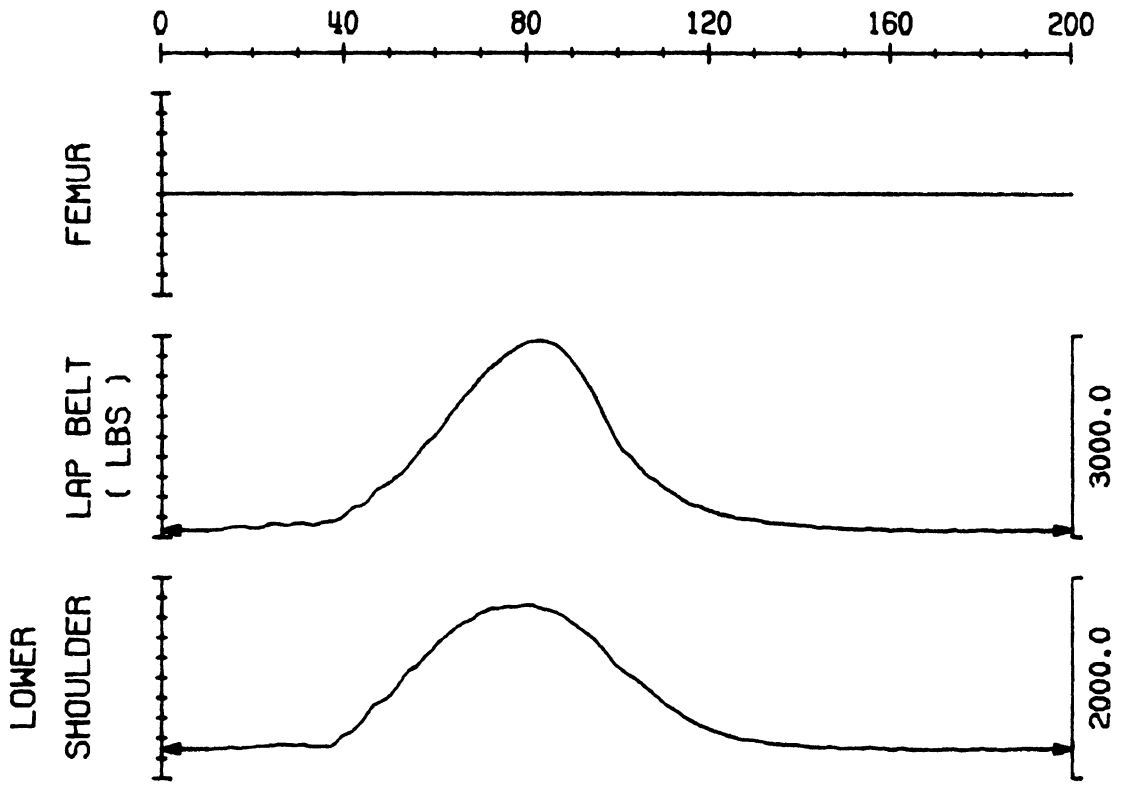
FILE: 430

76B014-1: DUM-H

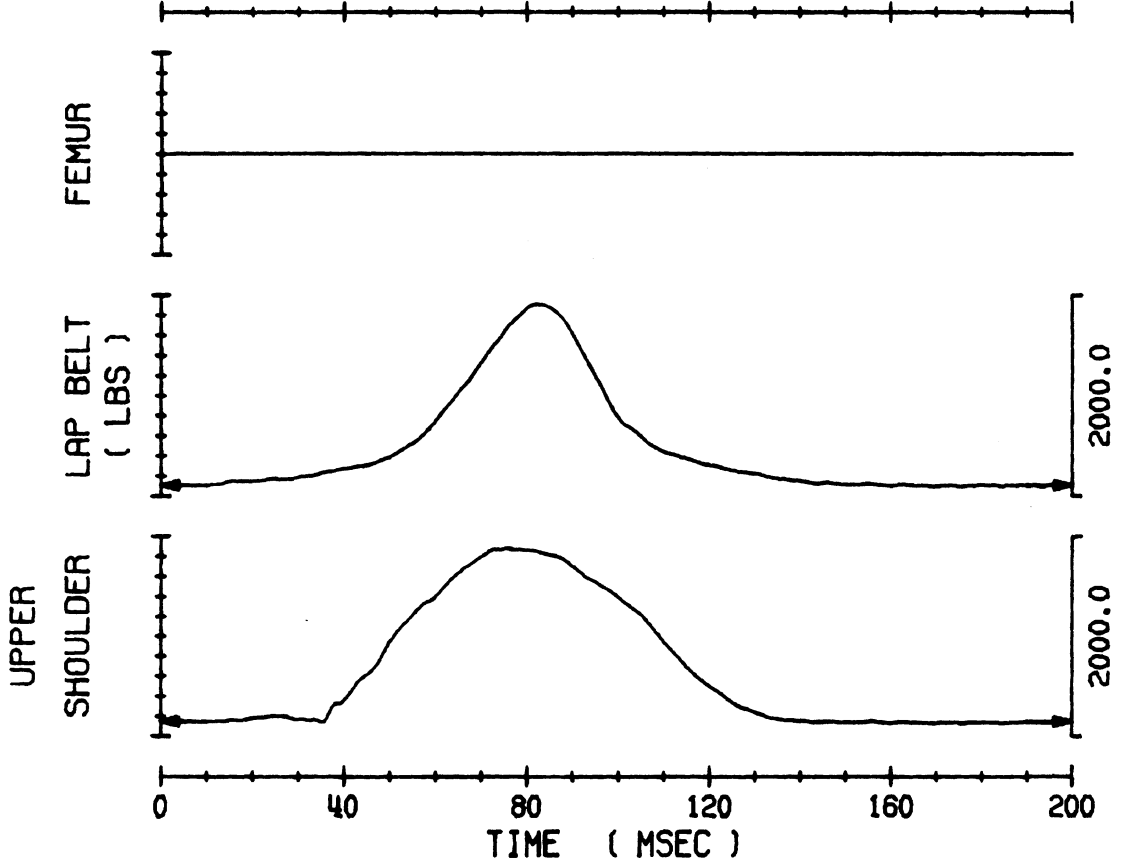


SLED DECELERATION

RIGHT SIDE



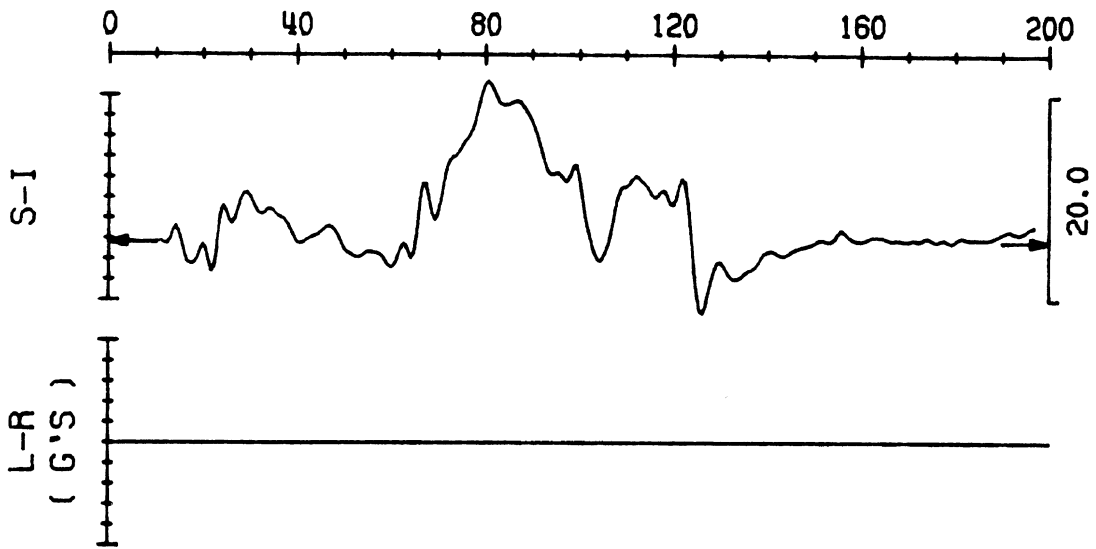
LEFT SIDE



MEASURED FORCES

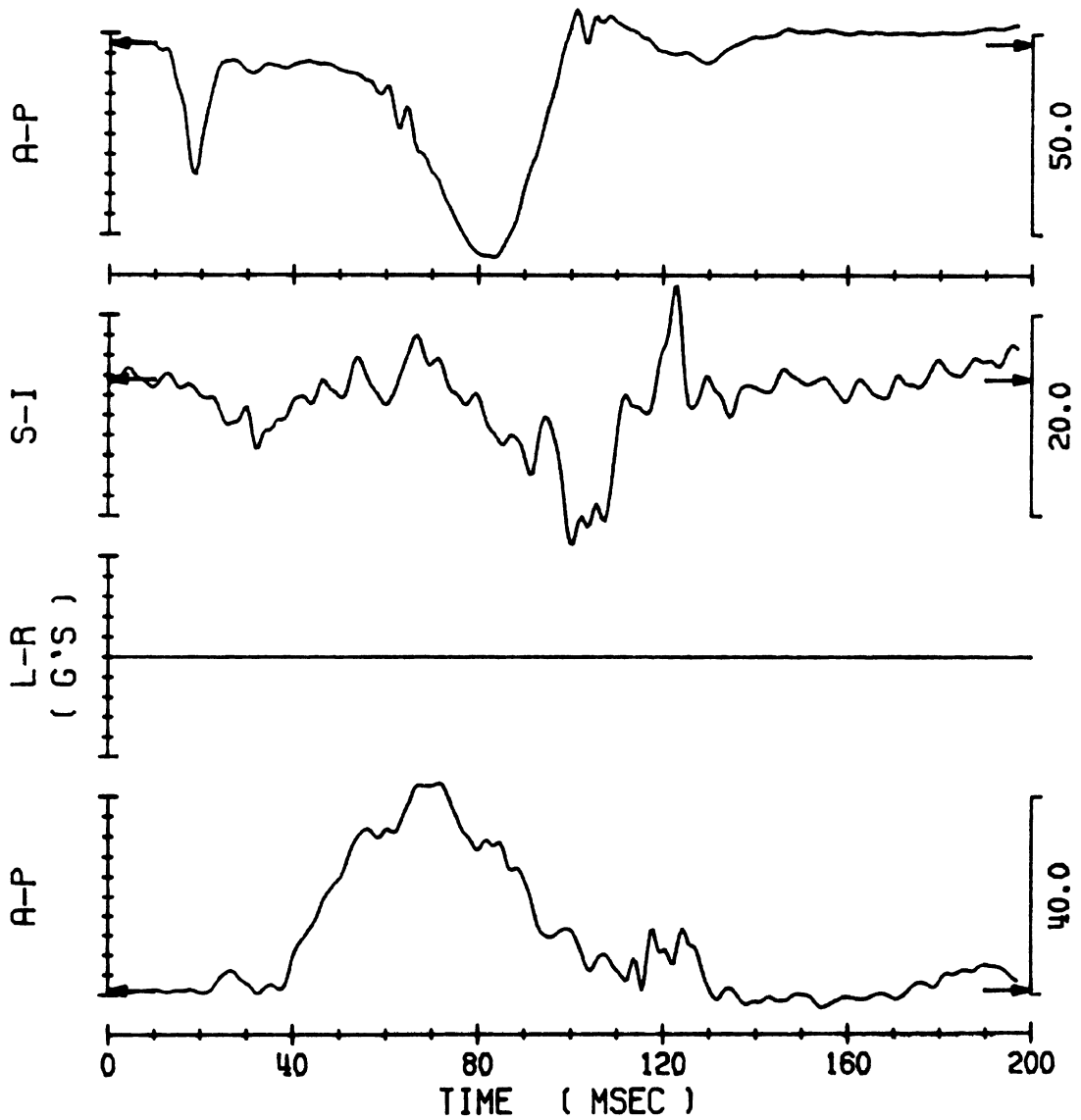
PELVIS

INTERNAL



THORAX

INTERNAL



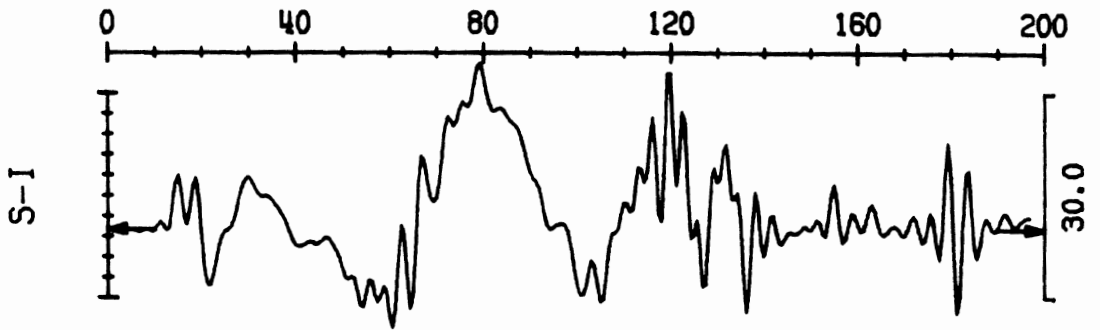
MEASURED ACCELERATIONS

FILE: 440

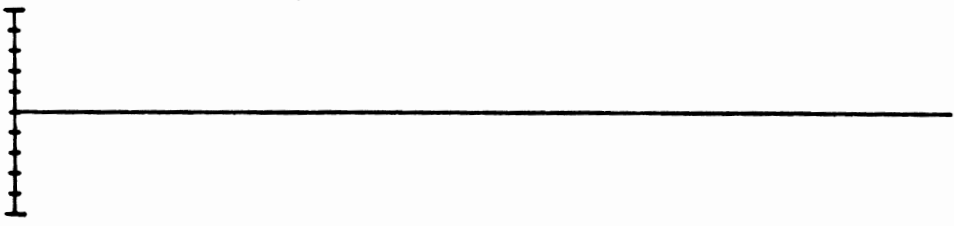
76B014-2: DUM-H

PELVIS

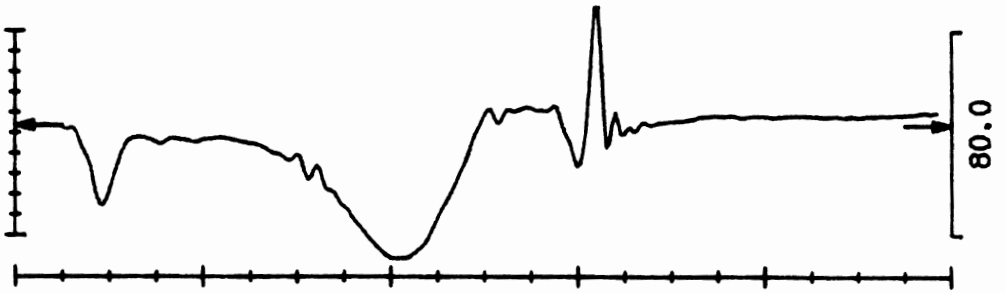
EXTERNAL



L-R
(G'S)



A-P



THORAX

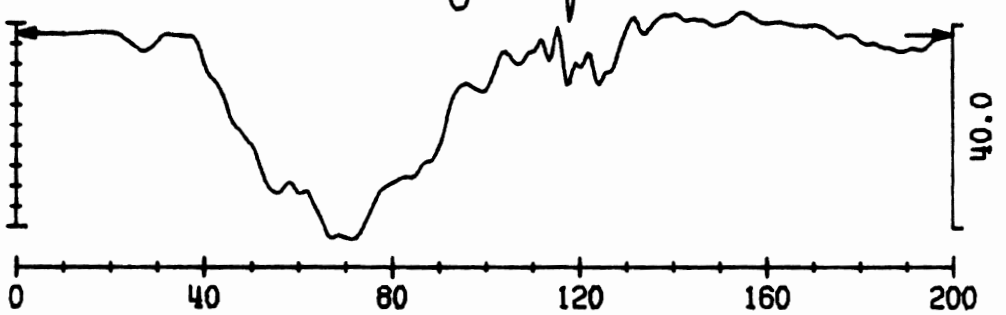
EXTERNAL



L-R
(G'S)



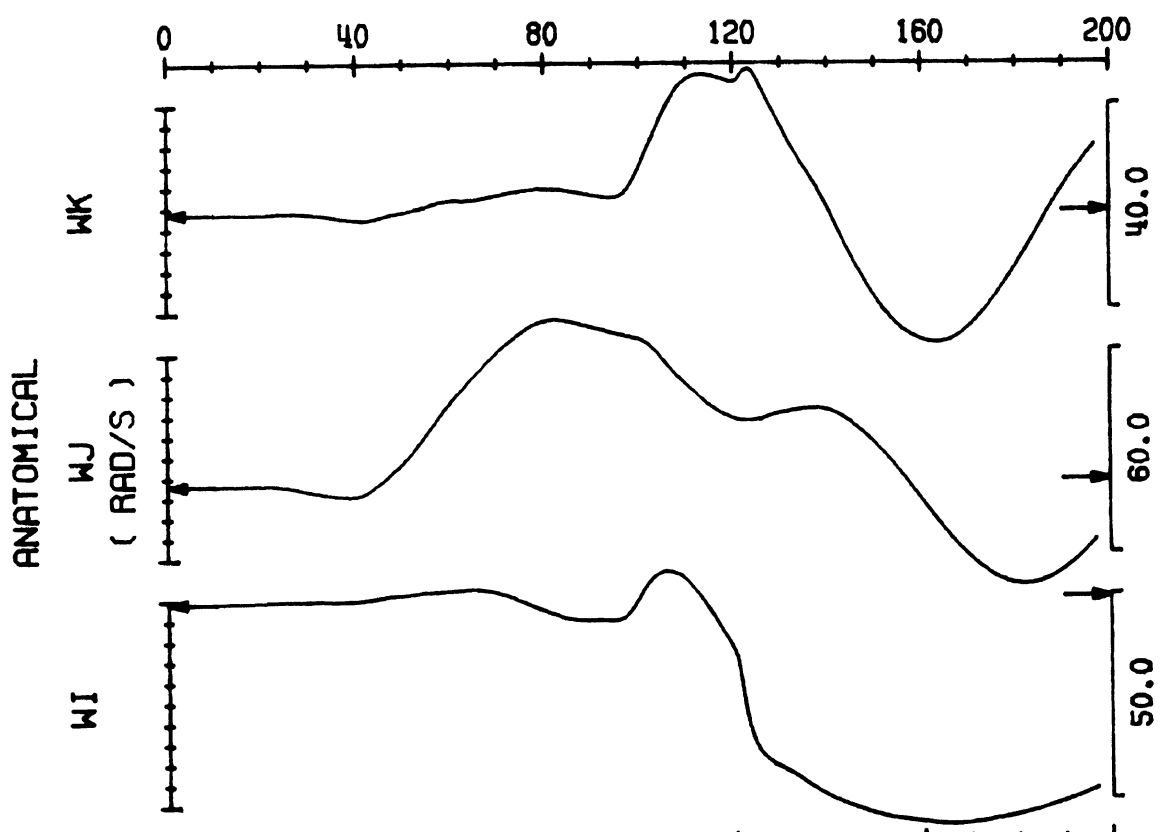
A-P



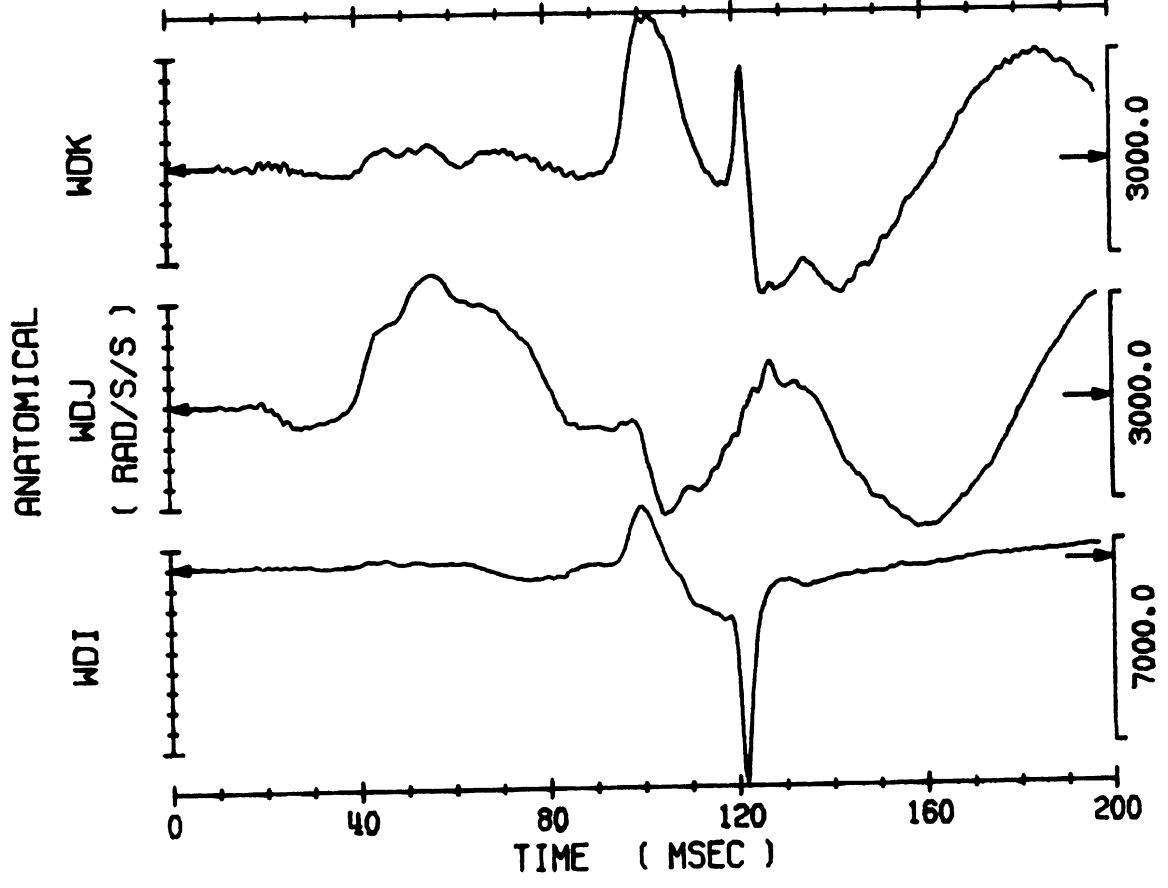
TIME (MSEC)

MEASURED ACCELERATIONS

ANG VELOCITIES



ANG ACCELERATIONS

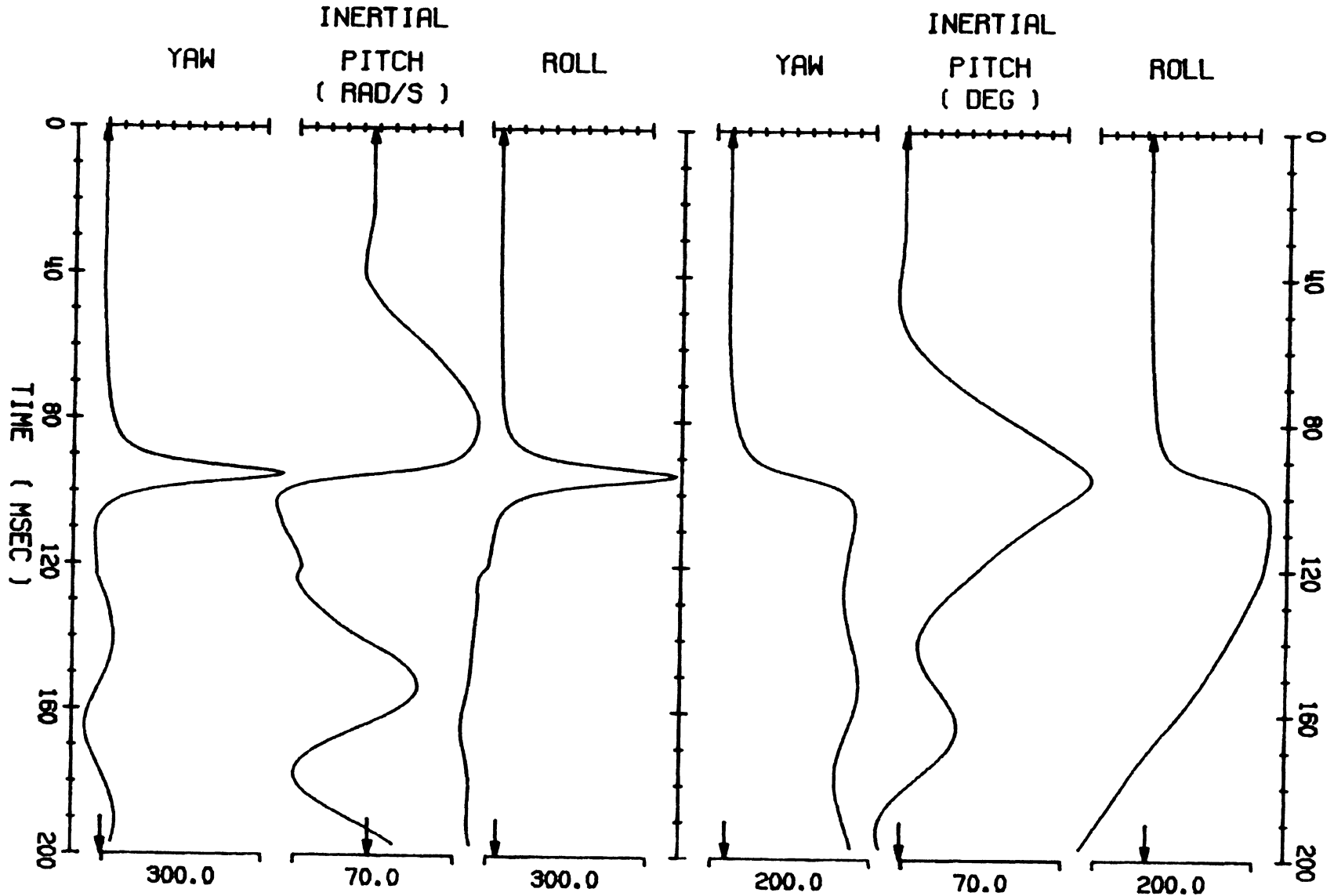


TIME (MSEC)

3-D ANGULAR MOTION

EULER RATES

EULER ANGLES



FILE: 495

76B014-1: DUM-H

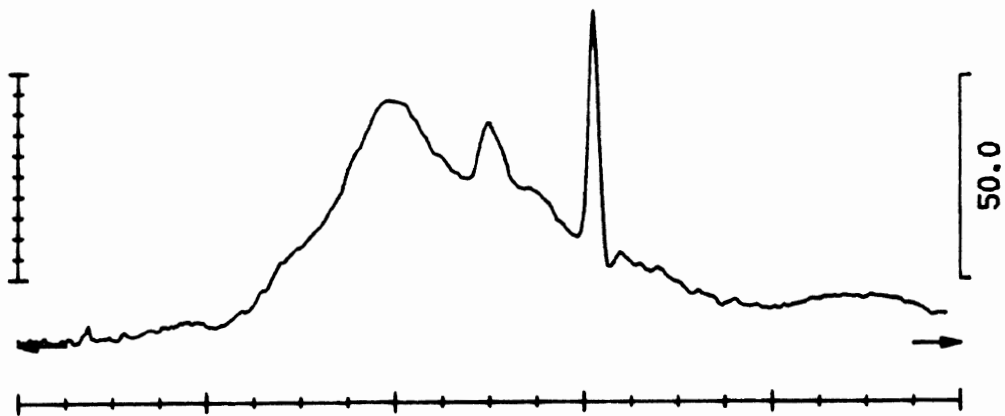
3-D ROTATIONS

C-355

RESULTANT

GSI = 958
HIC = 792

0 40 80 120 160 200



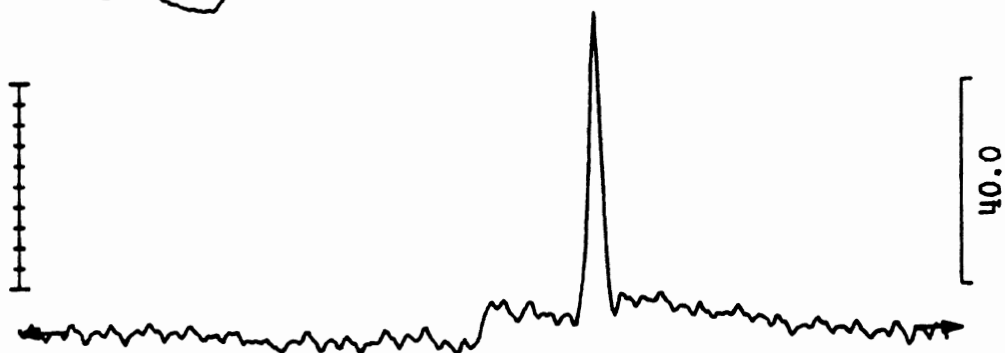
HEAD STD TRIAX (ACT)

READINGS
L-R
(G'S)

S-I



A-P



0 40 80 120 160 200
TIME (MSEC)

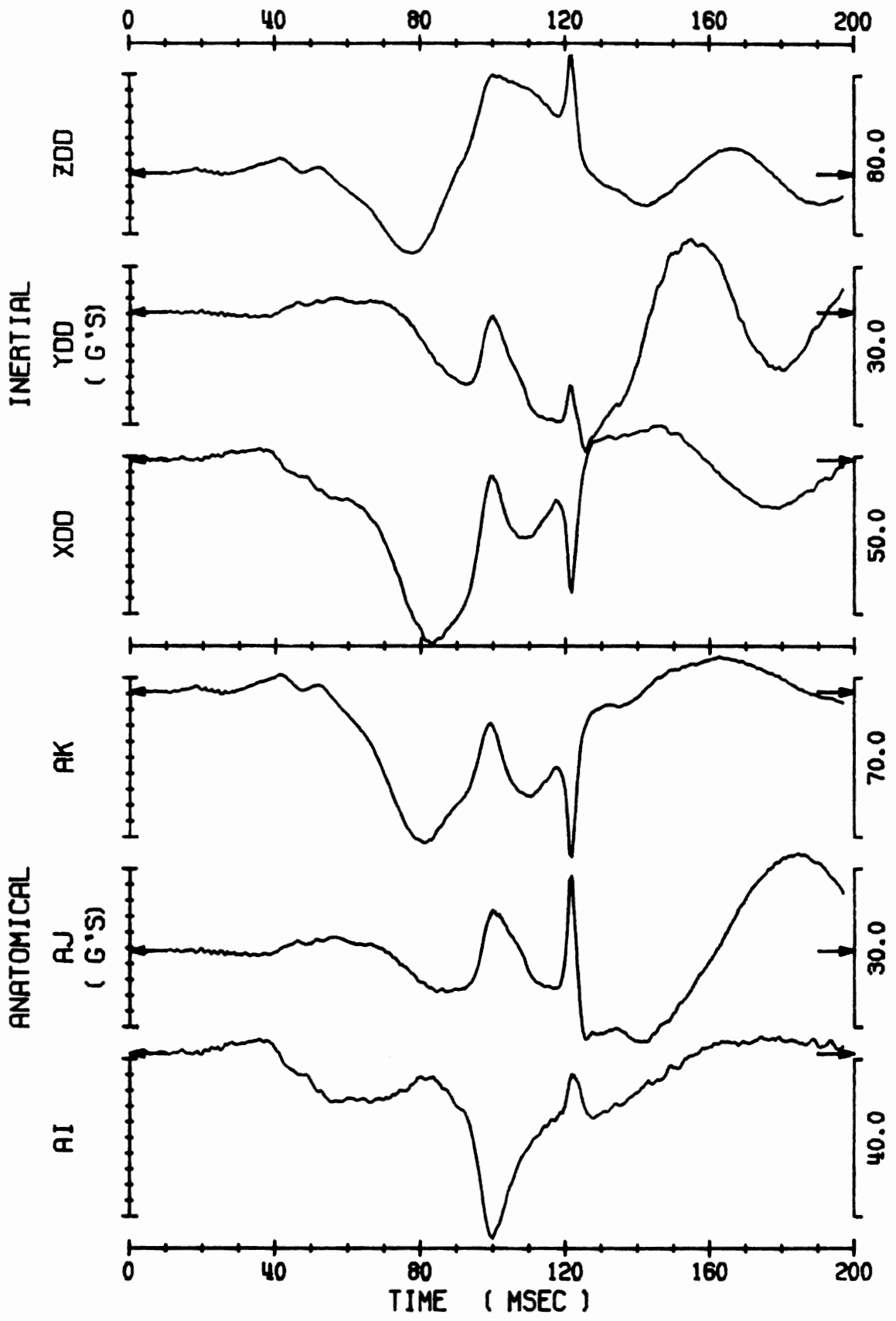
MEASURED ACCELERATIONS

GSI=1241, HIC=1047

ACC OF: HEAD STD TRIAX

FILE: 436

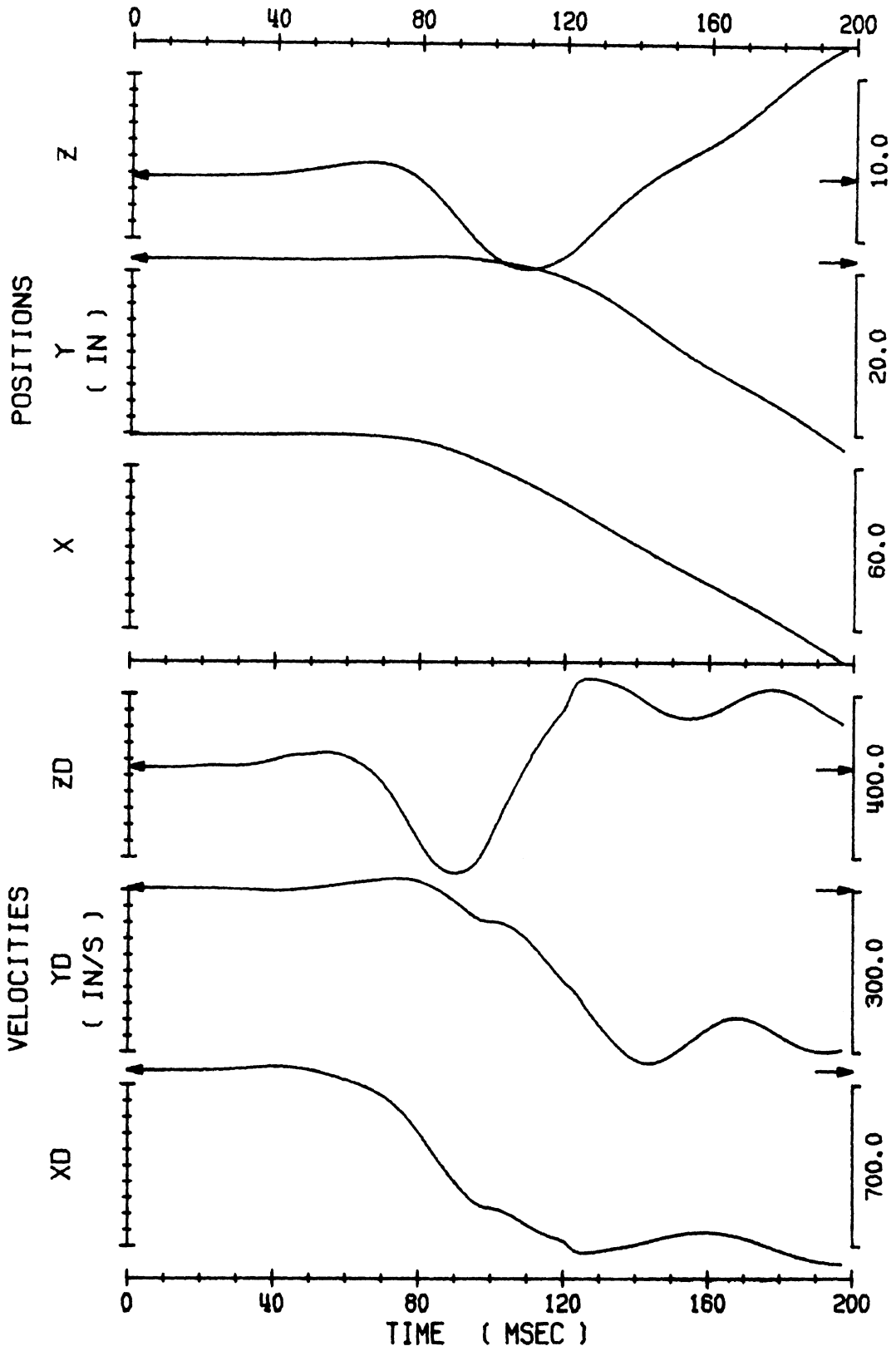
76B014-1: DUM-H



3-D ACCELERATIONS

HEAD STD TRIAX

INERTIAL MOTION OF:



3-D TRANSLATIONS

WHOLE BODY RESPONSE
=====

SUMMARY
=====

TEST NO.: 76B015
=====

SUBJECT: DUM-H

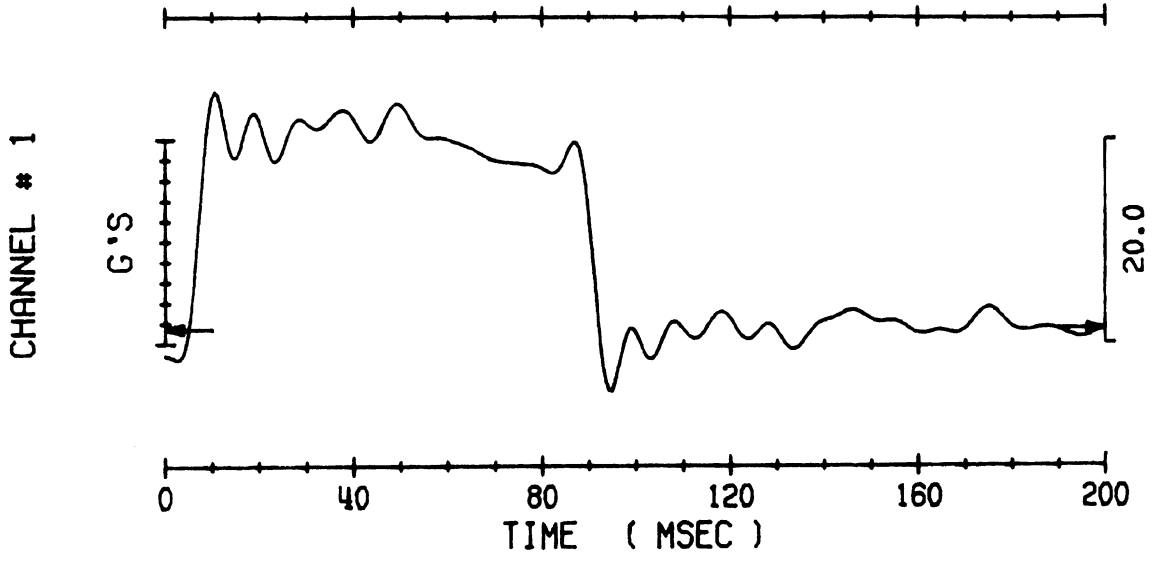
19.5 G-LEVEL
87. MS LONG
33.4 MPH DV

| | SHOULDER BELT | | LAP BELT | | FEMURS | |
|--------------|---------------|-------|----------|-------|--------|-------|
| | UPPER | LOWER | LEFT | RIGHT | LEFT | RIGHT |
| PEAK FORCES: | 1704. | 1410. | 1744. | 2822. | 0. | 0. |
| (LBS) @ (MS) | 70.4 | 70.4 | 77.3 | 75.4 | 0.0 | 0.0 |

| | RESULTANT PEAK | (A-P) | | (L-R) | | (S-I) | |
|----------------|-------------------|--------|-------|--------|-------|--------|-------|
| | | MIN | MAX | MIN | MAX | MIN | MAX |
| IN THORAX ACC: | 0. | -2. | 39. | 0. | 0. | -18. | 3. |
| (G'S) @ (MS) | 0.0 | 134.8 | 59.2 | 0.0 | 0.0 | 93.0 | 114.3 |
| GSI= | 0 | | | | | | |
| IN PELVIS ACC: | 0. | -50. | 3. | 0. | 0. | -6. | 18. |
| (G'S) @ | 0.0 | 75.1 | 142.3 | 0.0 | 0.0 | 119.6 | 77.5 |
| EX THORAX ACC: | 53. | -36. | 2. | -19. | 22. | -11. | 20. |
| (G'S) @ | 92.3 | 59.3 | 147.4 | 80.9 | 95.5 | 113.0 | 91.4 |
| GSI= | 364 | | | | | | |
| EX PELVIS ACC: | 0. | -50. | 107. | 0. | 0. | -4. | 118. |
| (G'S) @ | 0.0 | 75.2 | 38.2 | 0.0 | 0.0 | 131.1 | 39.2 |
| | | | | | | | |
| HEAD ANG ACC : | 7237. | -3615. | 1595. | -1174. | 1986. | -1582. | 676. |
| (RAD/S/S) @ | 114.2 | 114.6 | 91.1 | 137.9 | 50.1 | 126.2 | 113.6 |
| HEAD ANG VEL : | 45.3 | -42.7 | 8.0 | -13.3 | 44.1 | -12.2 | 18.7 |
| (RAD/S) @ | 158.5 | 168.5 | 96.9 | 169.5 | 73.3 | 147.6 | 107.4 |
| EULER ANGLES : | | | 171.2 | | 78.8 | | 143.3 |
| (DEGREES) @ | | | 145.3 | | 89.1 | | 107.0 |
| | | | | | | | |
| HEAD C.G. ACC: | 78. | -31. | 11. | -13. | 3. | -52. | 0. |
| (G'S) @ | 114.2 | 93.1 | 180.3 | 120.4 | 113.6 | 112.4 | 142.9 |
| HEAD C.G. HIC= | 891 | | | | | | |
| HEAD C.G. VEL: | 840. | -761. | 16. | -408. | -4. | -268. | 164. |
| (IN/S) @ | 191.6 | 120.5 | 32.7 | 176.0 | 32.2 | 82.7 | 127.2 |
| HEAD C.G. DIS: | | | -19.2 | | -1.4 | | -6.8 |
| (IN) @ | | | 106.3 | | 106.3 | | 107.3 |

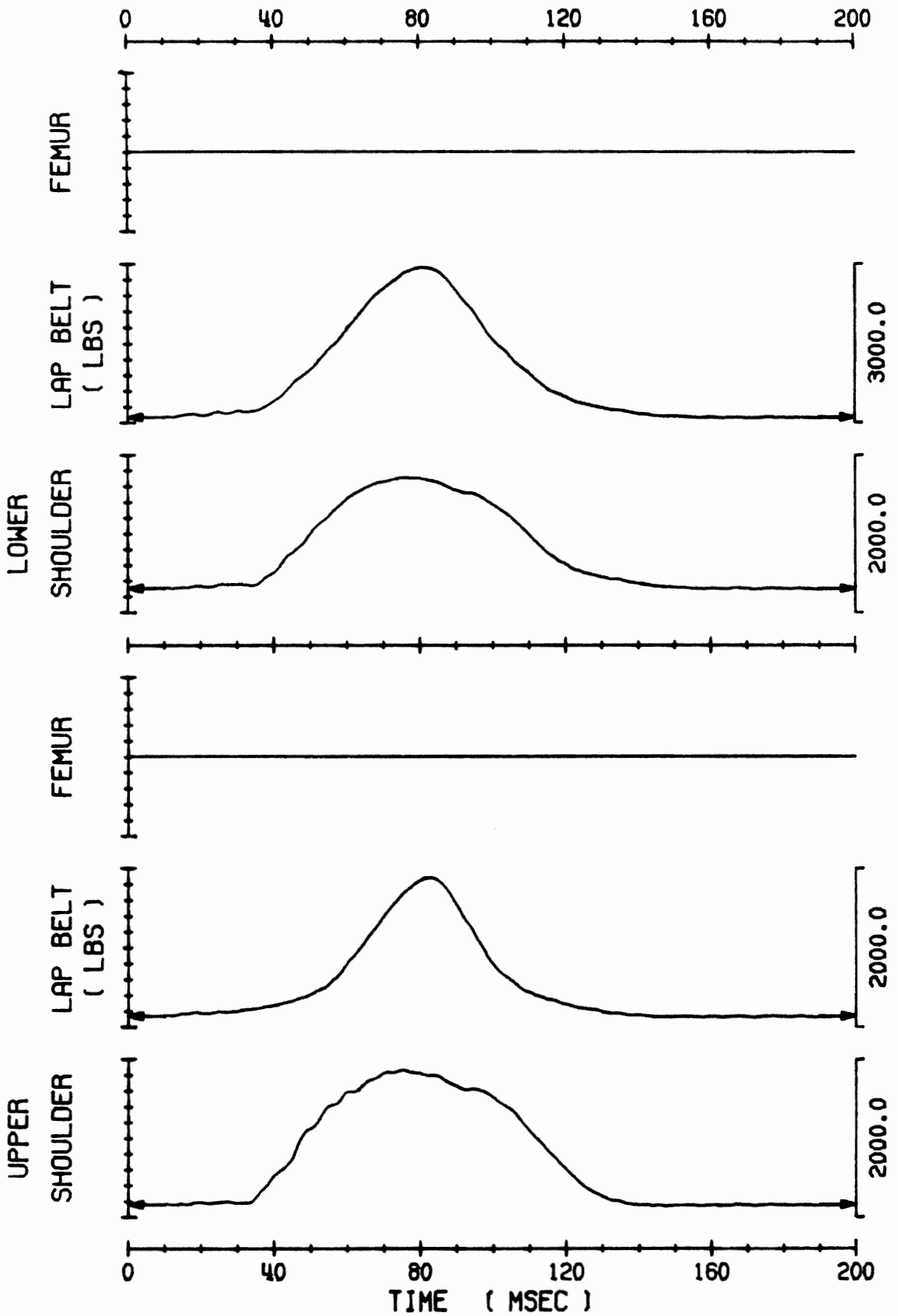
FILE: 442

76B015-1: DUM-H



SLED DECELERATION

RIGHT SIDE



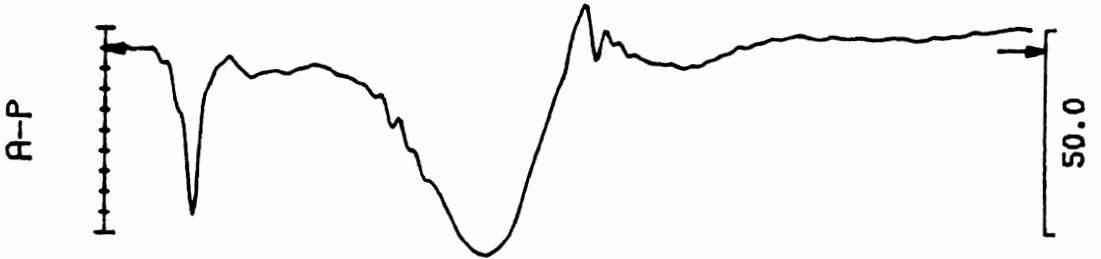
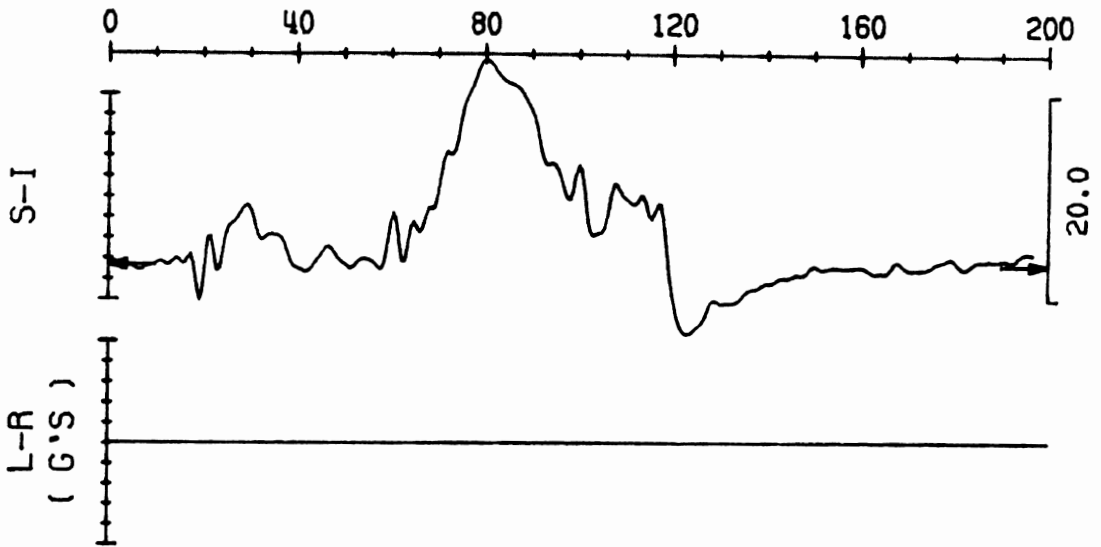
MEASURED FORCES

FILE: 451

76B015-2: DUM-H

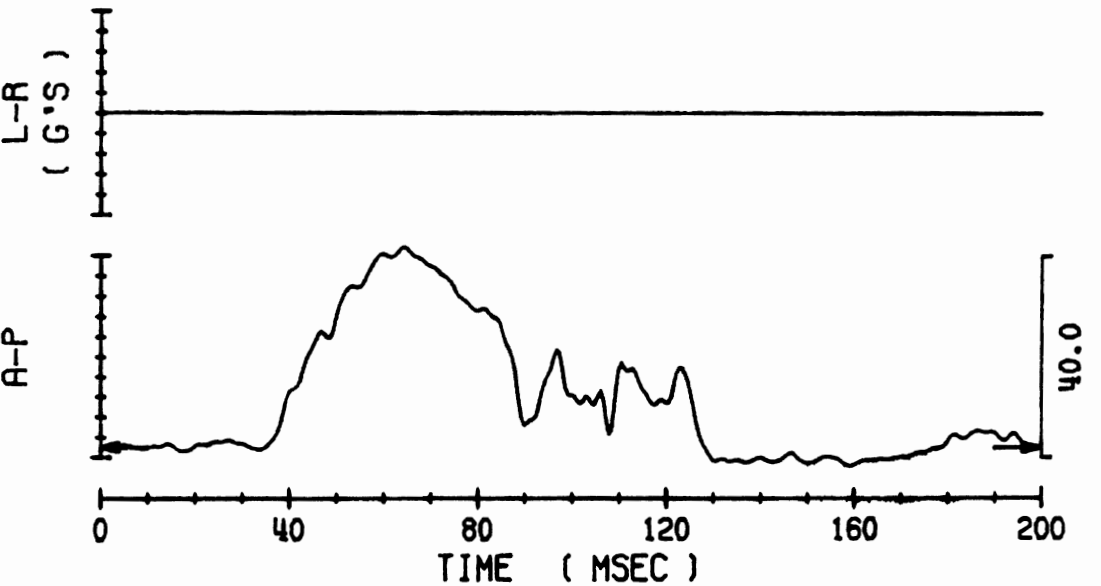
PELVIS

INTERNAL



THORAX

INTERNAL



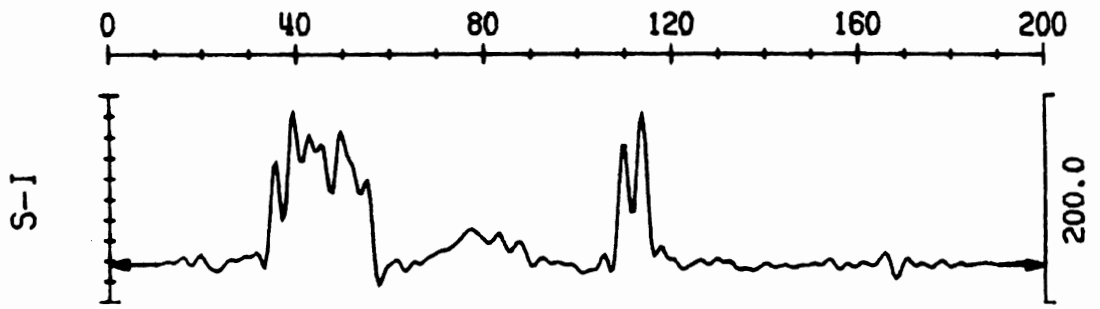
MEASURED ACCELERATIONS

FILE: 452

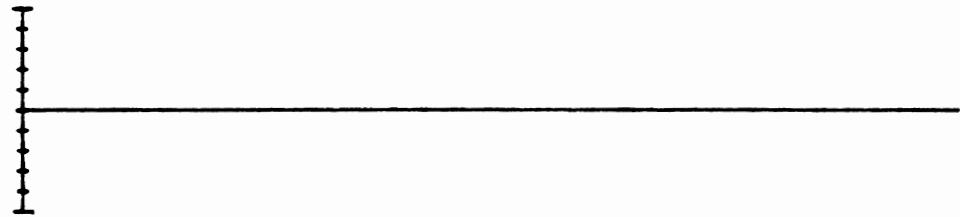
76B015-2: DUM-H

PELVIS

EXTERNAL



L-R
(G'S)

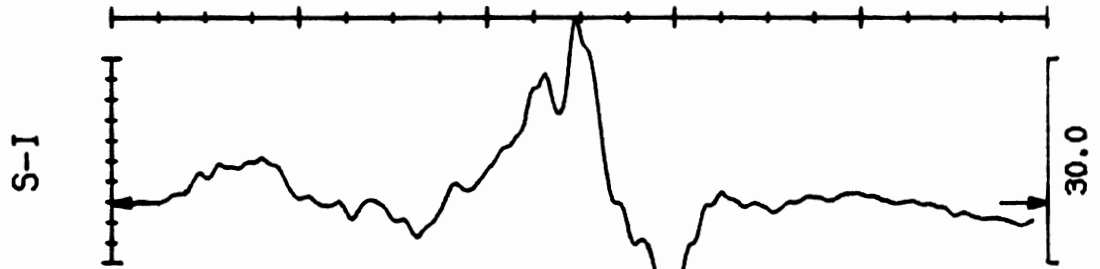


A-P

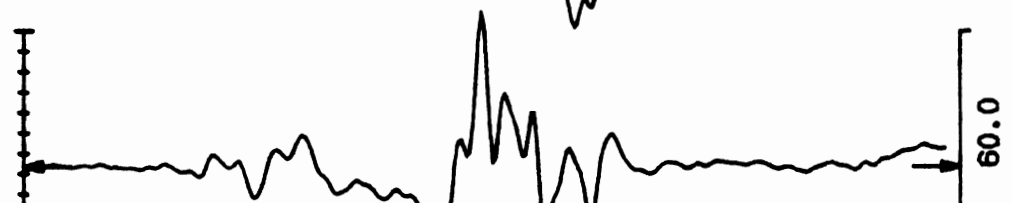


THORAX

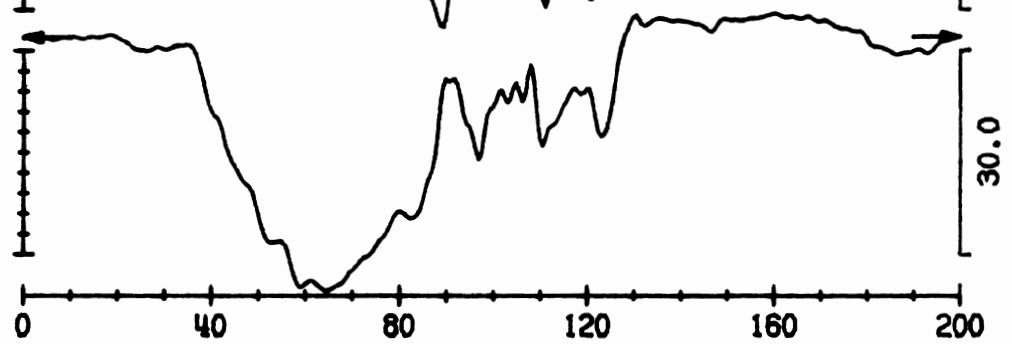
EXTERNAL



L-R
(G'S)



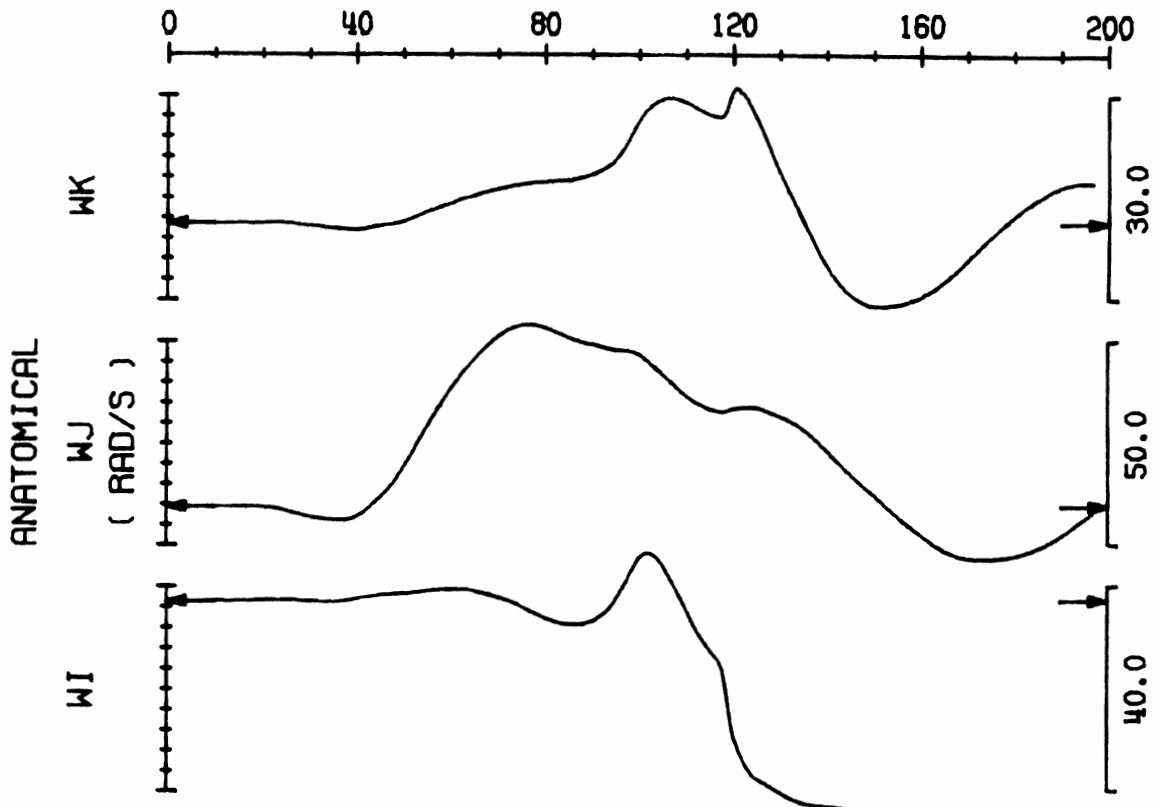
A-P



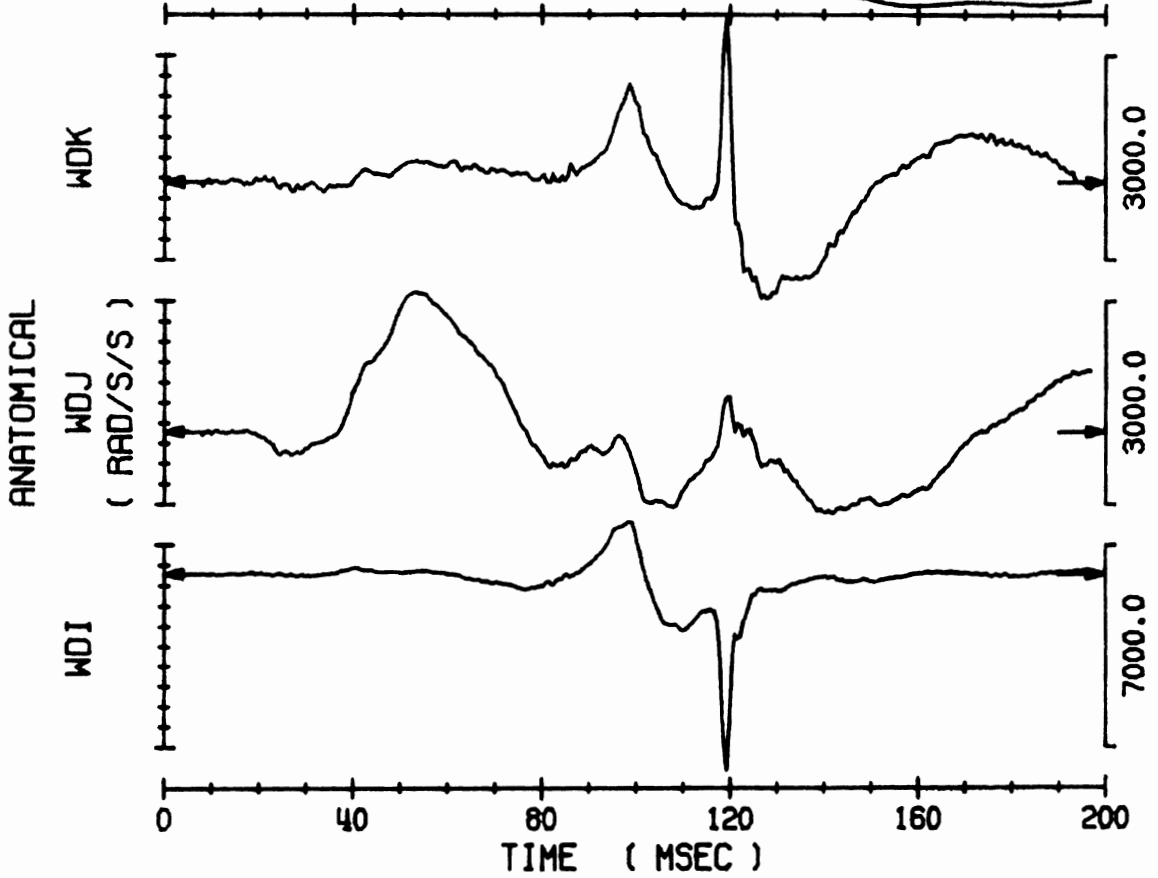
TIME (MSEC)

MEASURED ACCELERATIONS

ANG VELOCITIES



ANG ACCELERATIONS



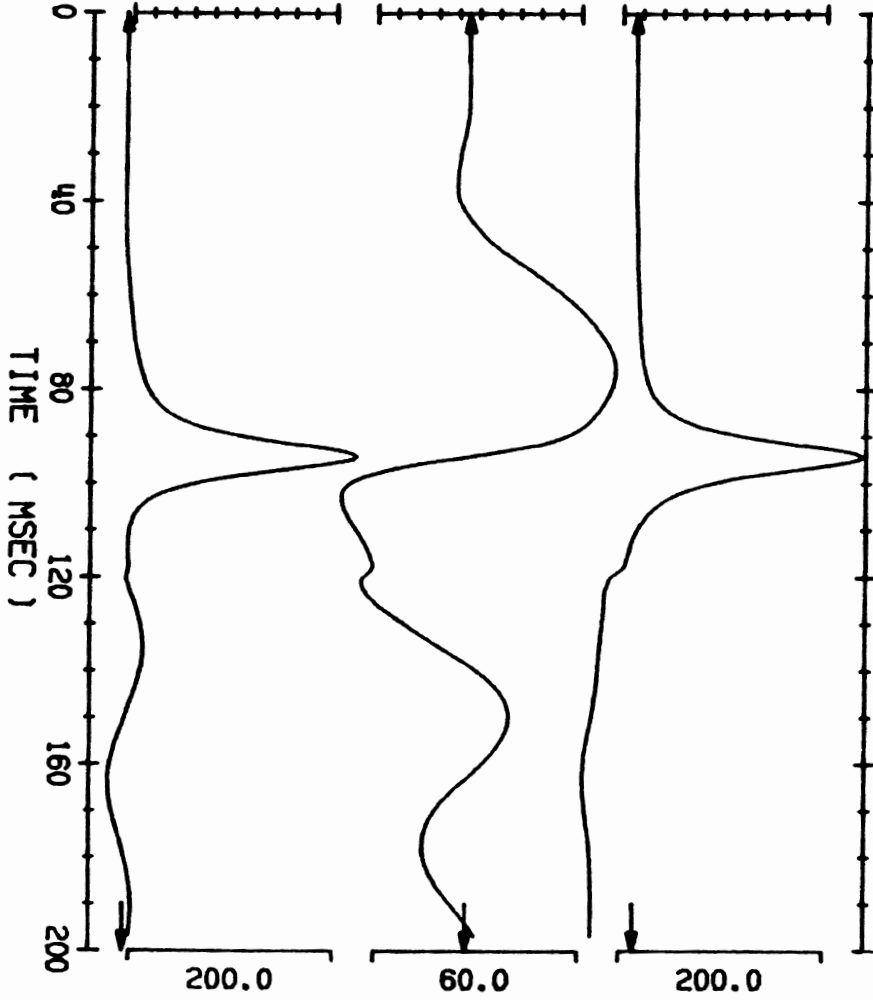
3-D ANGULAR MOTION

EULER RATES

INERTIAL
PITCH
(RAD/S)

ROLL

YAW

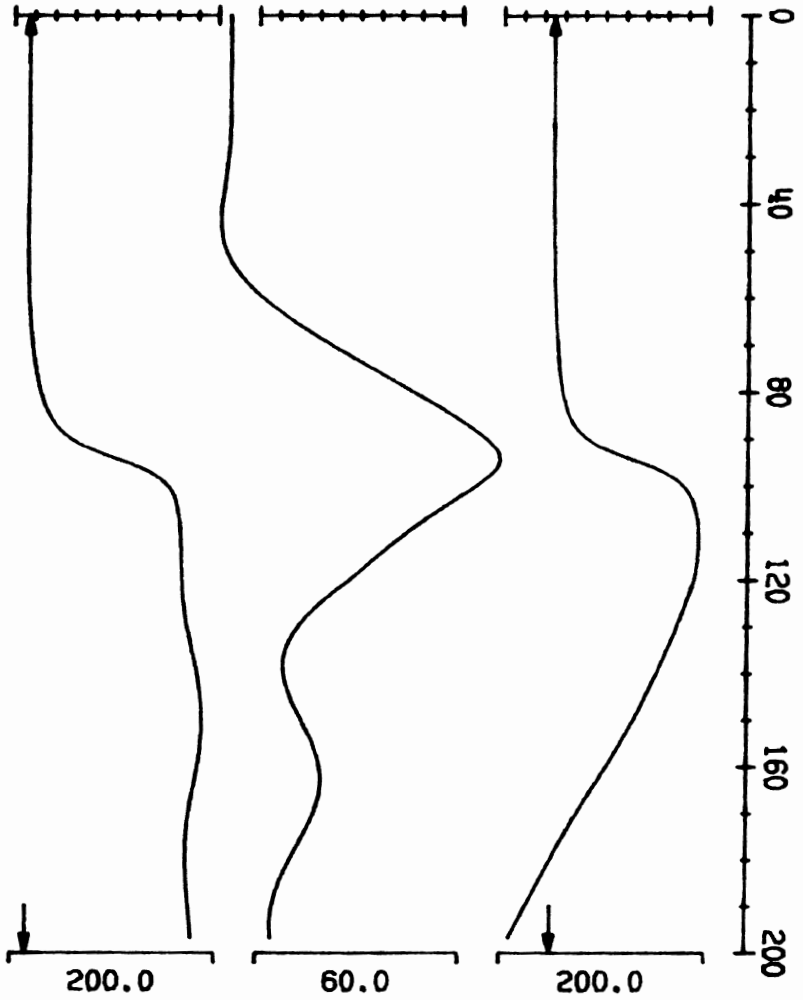


EULER ANGLES

INERTIAL
PITCH
(DEG)

ROLL

YAW



FILE: 447

76B015-1: DUM-H

3-D ROTATIONS

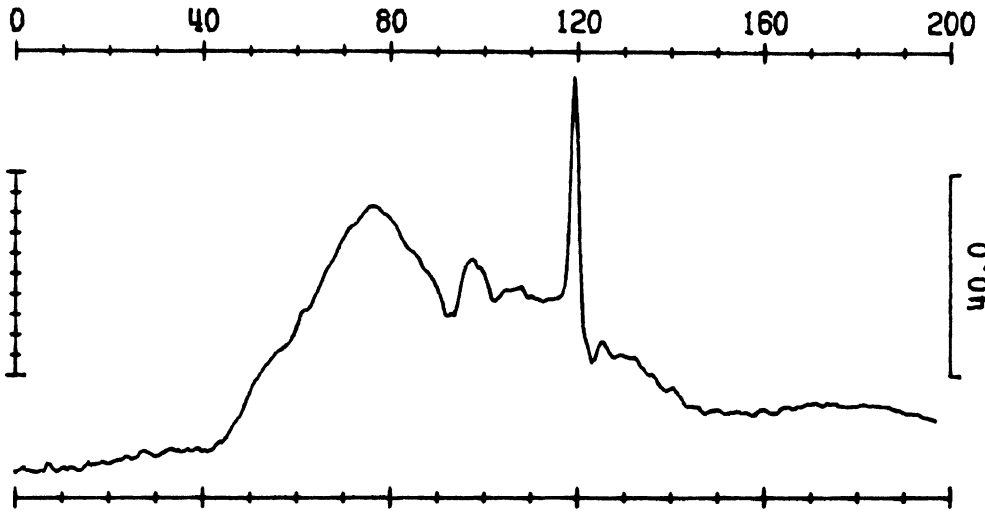
FILE: 450

76B015-1: DUM-H

RESULTANT

GSI = 813

HIC = 663



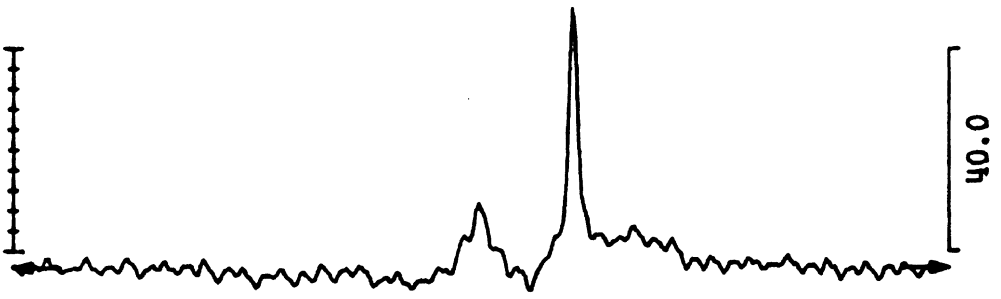
HEAD STD TRIAX (ACT)

S-I

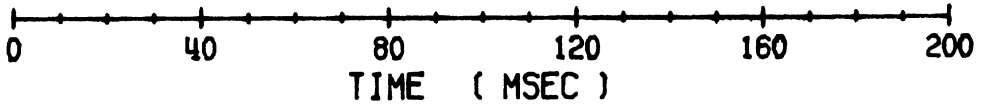
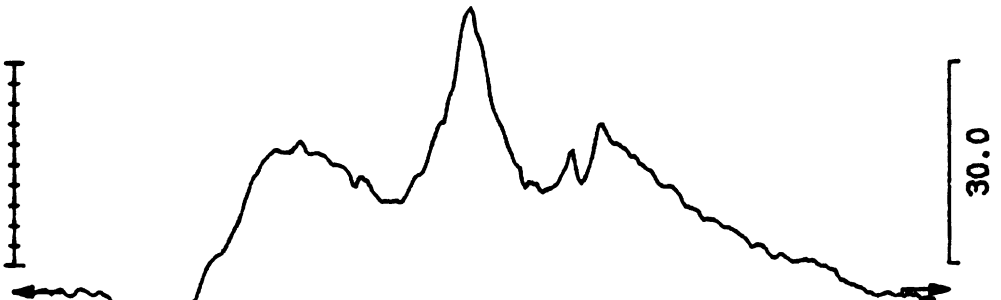


READINGS

L-R
(G'S)



A-P

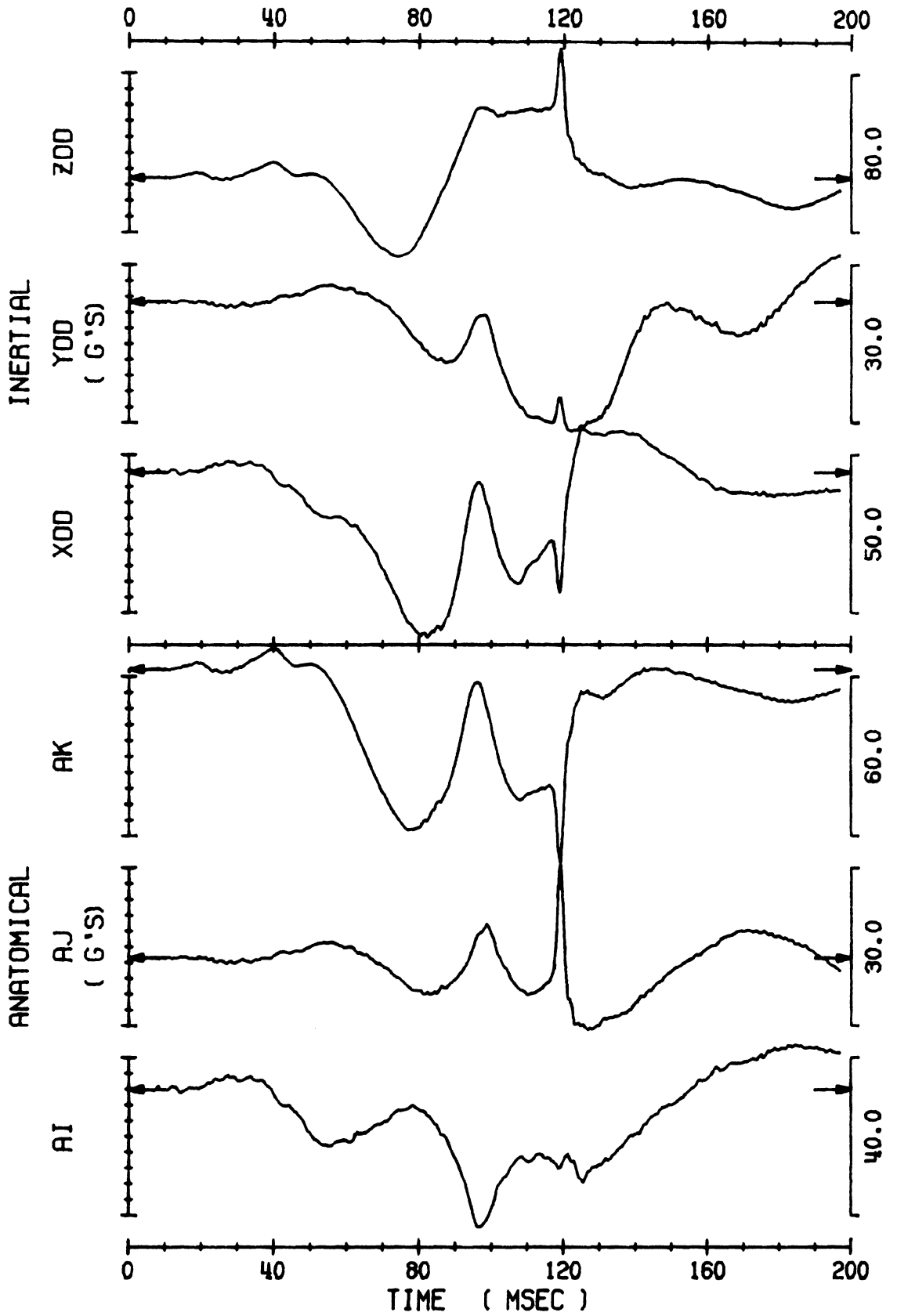


MEASURED ACCELERATIONS

FILE: 448

76B015-1: DUM-H

ACC OF: HEAD STD TRIAX GSI=1065, HIC= 891



3-D ACCELERATIONS

